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ABSTRACT

These four issues of this quarterly publication on the education of gifted students contain the following featured articles: (1) "Reflections on China: Implications for Gifted Education" (Andrea I. Prejean and Lynn H. Fox); (2) "Differentiating Instruction for Gifted Middle School Students in Heterogeneous Science Classes" (Brendan D. Miller and Colleen Willard-Holt); (3) "'Let's Get Real': An Innovative Problem-Based Learning Program" (Dan G. Holt); (4) "Identification and Education of the Young Gifted Child: A Parent's Perspective" (Susan Grammer); (5) "Mis-Diagnosis and Dual Diagnosis of Gifted Children: Gifted and LD, ADHD, OCD, Oppositional Defiant Disorder" (James T. Webb); (6) "Mis-Diagnosis of Asperger's Disorder in Gifted Youth: An Addendum to 'Mis-Diagnosis and Dual Diagnosis of Gifted Children" by James Webb, Ph.D." (Edward R. Amend); (7) "Effective Identification of Children for Gifted Education Programming" (Barbara Louis and Michael Lewis); (8) "How 3D Thinking Can Enhance Gifted Education" (Patti J. Hamilton); (9) "More than Just Intellect: Qualities of Personal Power to Gifted Students" (Kathleen Dent and Susan Craig); (10) "Teaching Gifted Children: Multiple Intelligences as a Framework in Pre-service Teacher Preparation" (Lynn H. Fox and others); and (11) "Chats with Gifted Students on Life Ahead: Philosophy for Non-Philosophers at the Middle and High School Levels" (Joseph A. Grispino). Issues also contain book reviews of gifted literature and profiles of Thomas Wolfe, George Orwell, Chicago, Larry McMurtry and Eudora Welty. (Some articles include references.) (CR)

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Maurice D. Fisher, Editor

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Happy New Year to all of our readers! Beginning with the Winter 2001 issue, we have changed ***GEPQ*** from a hard copy format to primarily a web site format on www.giftededpress.com. All subscribers and advisory board members will receive an user name and password to access the current and future issues through a password protected web page.

We are making this change because of economic considerations and to expand communication options. First, recent increases in postal rates make it difficult to continue "snail mail" delivery at out low subscription rate. Second, placing ***GEPQ*** on a web page will enable us to include more information about the gifted field than is possible with the hard copy version. I hope this transition will proceed smoothly. But with all such changes, some glitches will inevitably occur along the road to improved and wider communication.

I would like to express my sadness concerning the death of Steve Allen -- comedian, entertainer, author and thinker. He was a great friend of gifted education. Several years ago, he wrote a wonderful article for ***GEPQ*** (Winter 1994 issue) on his life and views on educating the gifted.

My wife, Eugenia, and I visited Susan Winebrenner in Charlottesville, Virginia in October 2000 where she presented a two-day workshop to a full-house of teachers and administrators. Susan is one of the extraordinary people in the gifted field who knows how to effectively present practical and research-based information on differentiating the curriculum for gifted students in the regular classroom. She has had a tremendous impact on both regular classroom teachers and gifted resource teachers.

The articles in this issue cover a wide range of topics as follows: (1) discussion of mathematics education in China by Andrea Prejean and Lynn Fox; (2) differentiated science curriculum at the upper elementary and middle school levels by Brendan Miller and Colleen Willard-Holt*; (3) A unique program that enables gifted students to solve corporate problems by Dan Holt; (4) review of a book on musical genius; and (5) an article on the life and accomplishments of Thomas Wolfe by Michael Walters. Good reading and see us in hypertext heaven!

Maurice D. Fisher, Ph.D., Publisher

*Gifted Education Press has recently published a book by these authors on differentiating science curricula.

Reflections on China: Implications for Gifted Education

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Introduction

We were standing on a college campus looking at a large modern building that cast a shadow over small garden spaces with brightly-colored pagodas. This was China and we were guests of the State, invited to present papers at the 2nd International Conference on Mathematics Education held in Hangzhou, China in May 2000. The conference was co-sponsored by Hangzhou Teachers College and the California State University at San Marcos. Dr. Fox's paper on the education of mathematically gifted children in the United States and Dr. Prejean's paper on the uses of computer technology in teacher preparation were chosen for the conference.

In this article, we will summarize some of the issues that emerged from the papers presented and from our conversations with conference participants as well as our observations of educational practices in schools in two cities in China -- Hangzhou in the southern part and Xi'an in the more central portion. We will also share what we have learned about education in present-day China in terms of the historical/political context from which it has evolved. We have extrapolated from all of these experiences our own interpretation of the status of gifted education in China. We conclude with some ideas for connections with China in a number of ways that may be of interest to educators and researchers in gifted education.

The Conference

The Chinese appreciate the value of ceremony and so the conference opened with very formal presentations by representatives of the co-sponsoring colleges, Hangzhou Municipality, the standing Committee of the National People's Congress of China, and China's Mathematics Association. The conference culminated in an elaborate banquet and evening of traditional Chinese music and dance performed by students at the host college. Liping Ma gave the keynote presentation. She was born and raised in China and is now a professor at the University of California at Berkeley, USA. She recently authored a comparative study of mathematics content knowledge and approaches to mathematics instruction by teachers in China and the United States.

The conference participants included 60 elementary school, high school, and university teachers of mathematics, university mathematics education researchers, and school administrators from the United States of America, Canada, Japan, Austria, South Africa, Malaysia, Singapore, and Hong Kong. Forty of the 60 participants were from China. Conference participants were allowed to observe classes at the high school affiliated with Zhejiang University or at Qui Shi Elementary School in Hangzhou, China. A small group of teachers and professors from the United States also observed mathematics classes at a junior secondary school (equivalent to our middle school), the Helen Snow School in Xi'an.

The focus of the conference was on teacher preparation and effective instructional strategies to reach a broad range of students. Following the Cultural Revolution in China, there were few teachers prepared by colleges and few schools for children. Thus, there is currently a struggle to create schools and to prepare teachers in a country with on[1], 2% of the population attending college. Although teaching is a respected profession in China, it is not particularly highly paid. Most of the new teachers we observed were young women. The faculties of the colleges, however, were predominately older men. While much of the teaching, especially at the college level, is traditional lecture, there is a growing concern for changing approaches to teaching, especially at the pre-college level, to include more active learning and technology. Chinese representatives to the conference seemed eager to learn about efforts at educational reform and cognitive constructivism from educators in the United States, Japan, and Singapore. All participants agreed that a mathematically and scientifically literate population was a necessity for promoting social development and raising the quality of life for all persons around the world. To put the discussion of current Chinese schools in context let us turn for a moment to a brief overview of the history of education in China in the midst of social-political experimentation and change.

History of Chinese Education

We will consider the importance of three distinct waves of educational philosophy and practice in China. First, the traditional Chinese culture that prevailed prior to 1949 could be described as the Era of Imperial Dynasties. The second period is marked by the rise of Communism in 1949 that led to dramatic change in philosophy and practice that continued with some variations until the late 1970s. The most recent era has emerged as the post-Mao Era and continues today with a mixture of reform and restructuring intermingled with some traditional practices.

Traditional Education

The early Chinese system of education can be traced as far back as the Shang Dynasty (1523 to 1027 B.C.). Education was provided for an elite group, trained for government service. The curriculum centered around the Six Arts: rites, music, archery, chariot-riding, history and mathematics. This approach to schooling was slightly altered by the teachings of Confucius (551 -479 B.C.) so that the core curriculum focused on the Four Books and Five Classics of Confucius (Surowski, 2000). In the final 100 years of the eras of the imperial rule, the Chinese suffered humiliation and defeat in the Opium war (1840-42) and lost Hong Kong to Great Britain. This spawned a period of openness to western educational practice, largely through the creation of Christian Missionary Schools. China, however, still remained a nation with only a small educated elite and massive general illiteracy among the predominantly agrarian population (Hayhoe, 1984; Surowski, 2000).

As early as 1921 the seeds of communism led to some experimentation with the notion of universal education at least at the level of higher education with the creation of Hunan Self-Study University established by Mao Zedong and his supporters. It was not until 1949, however, that a truly new educational system was fully implemented.

Soviet Influence on Education

With the establishment of the Communist political control of the State came the importation of the Soviet model of education. Most of the early efforts focused on the restructuring of higher education. The majority of primary and secondary-aged children still were not provided much formal schooling. Mao's disenchantment with the Soviets in 1961 led to an attempt to connect the legacy of Confucius with ideas taken from western-style educational practice. In this period a two-track system was developed. One track was traditionally academic and led to the possibility of university admission. The second track was vocational and technical.

The Cultural Revolution era of 1966 to 1976 brought a condemnation of the existing school system as too "bourgeois intellectual." The Communist Party Central Committee took over the control of education and the curriculum was reconstituted. The new curriculum focused on practical skills and eliminated subjects such as history and literature. The higher education community was radicalized by the dramatic changes to the admissions procedures and the focus on admissions of "virtuous" students. "Virtuous" was defined as being from families of peasants, soldiers or industrial workers in good standing with the party (Hayhoe, 1984; Surowski, 2000).

Modern Day Education

Political changes in 1976 resulted in a reversal of educational policy and practices with the reinstatement of academic standards and a focus on quality over quantity. This change actually has led to a decline in primary school attendance in rural areas where families find it more prudent to put the children to work than to send them to school. At the secondary level, the two-track system of vocational and general schools was also reinstated. Current enrollments are split with nearly 60 percent going to the vocational or technical schools. At present a small percentage of those in the general schools are accepted into universities. Estimates vary depending on the source. One college president stated that 10% were admitted, but clearly that is not 10% of the eighteen-year old population, but 10% of those students that have had access to secondary education.

In 1995, the National People's Congress passed the Education Law of the Peoples Republic which shows a commitment to the notion of universal education with a nine-year compulsory education policy and a commitment to produce both scholar/scientists and skilled laborers. More autonomy is being granted to colleges and universities while at the same time moving to fewer colleges and universities in a more consolidated system.

Descriptions of education in China today emphasize the nine-year compulsory law but the reality is that public education is by no means free. In the urban areas there are government schools for the academically talented but these charge fairly substantial tuition and are restricted to children whose families are in good standing with the Communist Party. Although the practice of "streaming" or ability grouping is now being renounced, it still appears to be the norm. Nor is there any apparent access for children with special needs. We encountered no discussion of "special education."

Geography dictated educational destiny in China. What really exists is a rigid dual tracking by geographical district. Key government schools with the academic curriculums are located in urban areas. Rural village schools, which constitute the vast majority of schools, offer a more vocational program for producing laborers and industrial workers rather than scholars or teachers. There is little opportunity for even a very bright student to cross over to an academic school from a village school.

Perhaps because the State provides no funds to village schools, they are not held to the same regulations as the urban key schools. Thus, they may offer only a half-day program that is not year-round. This leads to uneven success. Indeed the village schools face what they call the 3-6-9 situation where 90% of the children are enrolled but only 60% attend regularly and only 30% actually pass the standards to move to the secondary level (Hayhoe, 1984).

What did ring true in our observations was a commitment to the

arts and sports as well as academics in the key schools. At the schools we visited, children came early and stayed late in order to participate in sports and music. The academic work was interspersed throughout the day with breaks for recess, music, and visual arts.

While primary and secondary schooling are not free, university education is at least for the select few that pass the entrance examinations. Some students actually receive a stipend to help defray their families' loss by not having them contributing to the family income. University housing is run by a student organization rather than by the university administration.

Thus, the notion of education for the masses and education for upward social mobility seems more of an illusion than reality. The current system seems only slightly superior to the very early elite schools of the era of the dynasties or the disaster that occurred during the Cultural Revolution. Clearly, the system faces problems that go beyond the issue of limited resources. Teacher shortages are a major issue. Also, the country is more divided by language and culture than they wish to acknowledge. For example, oral language is so different between the northern and southern provinces that our guides, one from each area, had to communicate with each other in English.

Conference Theme Highlights

The conference was divided into three themes:

Teaching and Learning

Teacher Development, and

Mathematics Education Reform

The paper presentations were wide and varied from researchers and teachers from nine countries. In the next section, we will discuss three of the sessions that seem to have important aspects to American education. In one session, the long touted mathematics education program in Singapore at Northland Primary School was described. Several sessions described the value of distance education and the integration of the INTERNET as a teaching tool. In another session, Liping Ma described her work with Chinese and American teachers and her book *Knowing and Teaching Mathematics Elementary Education: Teachers' Understanding of Fundamental Mathematics in China and the United States* (1999).

Paper Session: Singapore

Described by the head of the mathematics department, the program at Northland Primary School seems to emphasize the best practices described and promoted by current American mathematics reform. The objectives of the program are: "(1) to develop, motivate, and inspire teachers to explore and carry out effective lessons that promote analytical and creative thinking skills in the learning of mathematics; and (2) to enable pupils to appreciate math in everyday life through sound understanding of math concepts, mastery of problem solving skills, application of appropriate processes, and acquisition of metacognitive skills." At first glance, these two objectives would seem to have much in common with the goals for mathematics promoted in American schools. The unique goal established by the Singapore school is the first goal for *teachers*. Generally, goals in American schools are written to reflect what the *students* will do and achieve in mathematics. The school in Singapore, though, has recognized and acted upon what professional developers have been discussing for ten to fifteen years in American education, but on which little wide-spread action has been seen here. Without a well-educated and self-directed teaching force that feels some sense of autonomy, our reform efforts in mathematics education in America seem doomed in their attempts to reach their full potential. The professional development practices in Singapore are well-documented and described. Staff development consists of three arms: workshops and sharing sessions, demonstration lessons, and learning circles. From these practices come strategies by which teachers are assigned "buddy" teachers and they perform peer observations and team teaching. From these actions come peer feedback which leads to better teaching and increased student achievement.

This attention to teacher development in both content and pedagogy contributes to a well-articulated curriculum that has led to high-achieving students.

Paper Session: INTERNET

Several presentations and papers described research into the integration and use of the INTERNET as a means of distance education. The paper *Enhancing the Mathematics Curriculum with Web-Based Technology* (Bookbinder, 2000) discussed a variety of strategies that would effectively use the WWW. Use of the Blackboard™ Courseware (http://www.blackboard.com) to enhance teacher preparation was described as it was used to facilitate student-led on-line discussions in an elementary education mathematics methods class. The goal of the activity was to provide a means for continued reflective thought and to provide a situation in which students could take the lead in the reflective process. The paper revealed students' beliefs about mathematics learning and teaching, students' attitudes about using this form of communication, and provided thought for a discussion about the use of technology in the preparation of mathematics classroom teachers. This paper further seems to have implications for gifted education.

Paper Session: Knowing and Teaching Elementary Mathematics by Linping Ma

A major session revolved around Ma's (1999) research into the mathematics content knowledge of Chinese and American teachers as it relates to classroom teaching practices. Her

reporting of her research inspired much discussion and debate as we all wrestled with an increasingly serious concern of teachers teaching mathematics without the necessary content knowledge needed to guide students to complete understanding. Ma (1999) reports that it is Chinese teachers' rich and deep understanding of the mathematics that contributes to the mathematics achievement of Chinese students. In her research she concludes that American elementary teachers have not had the in-depth exploration of school mathematics that provides them with the necessary background needed to enrich their students' mathematical education. Of note, is that even the experienced American teachers that were described as "better" than their counterparts had less understanding than the Chinese teachers in her research. She suggests that there are three periods that teachers develop their mathematical knowledge: Schooling, Teacher Preparation, and Teaching (Ma, 1999).

The conference papers and presentations revealed the differences and commonalties of American mathematics education with its counterparts around the world. We are all grappling with the necessity to educate all of our children. While much was discussed and demonstrated of and about the rich content knowledge of Chinese teachers and their ability to use effective pedagogy, we all recognize that a significantly small number of Chinese students have access to this quality of education. Unfortunately, it would appear to us that just like the United States, many children do not have the access to quality mathematics instruction in China.

Some Emerging Themes

Gender

Attendance rates in village schools are lower for girls than boys. Parents appear to have different expectations for boys and girls. In the urban key schools there appeared to be equal numbers of boys and girls in the primary grades. Our own observations were that school administrators and the university professors were predominantly male while the teachers we observed in the primary grades were young females.

Teaching as a Profession

We were told that teaching was an "honorable" profession but one that was not highly paid. A brief look at the role and status of teachers throughout the history of China shows that this was also the case prior to 1949. During the early years of the Communist regime, however, many left the profession. Indeed teachers became the object of much criticism under Mao and were verbally and even physically abused. Thus, despite more recent efforts by the government to call for respect for teachers, many are reluctant to embark upon a profession that was so reviled in the not so distant past.

Elitism versus Teaching for Diversity

In the past, Chinese education has focused on educating the elite: children of party members. In the present, the small, but growing wealthy class is managing to find quality education for their children. At both schools that we visited, though one was technically a state-school, parents were charged tuition. However, Chinese officials (South China Sea Morning Post, May, 2000) like many other governments around the world are recognizing that educating all children is imperative.

The School Visits

Our Observations

The visits to the schools were for the authors the most interesting aspects of our entire visit. Although it was clear to us that what we were seeing was "the best" and not the "norm" for China, it helped to confirm the rhetoric of the meetings in terms of commitment to change in instructional strategies. Although class sizes were very large by U.S. standards with 48 students to a class, the technology we saw in use was very advanced. We watched two different elementary mathematics teachers in a large room designed for demonstration teaching at Qui Shi Elementary School. The school is part of the Zhejiang University and classes for teachers are routinely held there. We also each observed a different middle school class in Xi'an. All four of these classes included good examples of constructivist pedagogy: active teaching and learning. Our review will focus on the most interesting of the two elementary school teachers we observed.

The room had a very large screen connected to a computer that the teacher used like an electronic blackboard. We were told that the teachers developed their own lessons for this computer, not "commercial" pre-programmed software. It appeared to be some type of authoring software on the order of HyperStudio. At first glance and observation, the primary class seated in a lecture format with the teacher behind a podium, seemed to have little in common with reform mathematics educational theories. Upon reflection, the class was interactive, with activities and a format that attended to a variety of intelligences and learning styles.

The goal of the lesson was to investigate the area and perimeter of regular rectangles. Students were asked to find all the arrays possible if the area was 12 square units. After a brief introduction and review of the meaning of area and perimeter, students gathered together in groups of 4 to work on the problem. Using 1cm paper squares, students worked together to find all the possible arrays. Quickly, at the call of the teacher, the students returned to their seats and shared their answers to the investigation. As students shared their answers, the instructor displayed their answers in a computer program for the whole class to see. From this activity, the students and teacher developed the formula for finding the area of regular rectangles ($l \times w = a$). At the conclusion of this part of the lesson, students were instructed to choose any rectangle shaped spot in the classroom and measure and find the area of their chosen spot. After a discussion designed to bring all the pieces

together, the students filed out and another class filed in.

Our Analysis

The lesson observed in this Chinese Primary School demonstrated "best practices" as described by leading mathematics educators, mathematicians, and recent reform efforts (NCTM, 2000). The teacher displayed a deep understanding of mathematics, the problem was interactive and open-ended, students clustered together to work, and technology was integrated into the lesson.

While American elementary classrooms traditionally have teachers who are generalists with little in-depth mathematics content, this Chinese teacher taught mathematics exclusively. Her education included in-depth study of mathematics as well as appropriate pedagogy. To be effective, teachers must know and understand deeply the mathematics they are teaching and be able to draw on that knowledge with flexibility in their teaching tasks (NCTM, 2000, p. 17). The lesson, tasks, and discussion facilitated by the teacher demonstrated a deep understanding of the content. This understanding provides teachers with the confidence needed to allow children to explore the content that is most meaningful for them and leads to students who own the content for a lifetime, instead of renting it for a short while.

The problem that the students solved is not a new one. Demonstrating an understanding of area is a common outcome for intermediate students. However, students were encouraged to solve the problem in their own way and to offer support to each other as they solved the problem. Through their own exploration, students developed the mathematical formula for finding area and added to their conceptual understanding of area. Through this activity not only did students learn the formula, but because they helped develop it, they can recreate the formula when they need it.

The pattern of teaching that emerged in almost all of the classes we observed was "teacher talks and interacts with entire class (about 48 students) for 10 minutes" followed by some type of "hands on or problem-solving activity" completed in groups of 4 or 6 children. In one class, children, working in pairs, went all over the room measuring angles on walls, doorways, and desks. This pattern would be repeated three to four times during one class. The teacher was always on her feet, moving around the room and talking with children. Most of the teachers had some form of checking the work or having the groups go to the chalkboard or white board to share their work at the end of each "mini-lesson activity."

In several classrooms for middle school age children (12-14 year olds), the classes were involved in games, working in pairs or foursomes. Some of the games had been demonstrated to us by one of the teachers at a session at the conference the day before. We found this interesting given our own use of games with junior high school students and the emphasis on games at the Key School in Indianapolis, USA, which is based on the theory of Multiple Intelligences proposed by Howard Gardner (Gardner, 1983).

Ideas for Gifted Education Collaborations

As China opens it doors to the influx of visitors and ideas, it opens the lines of communication between teachers and students in both countries. Teachers of gifted programs can now create a new form of "pen pal" by having reading circles or book buddies via email. More elaborate exchanges can be facilitated by using webpages, authoring programs like HyperStudio, and other communication software that allows for video transmissions. Teachers in two schools can have their classes work on projects with teams created across classes, or students in one class can teach students in the other class about their culture and history. Some of these projects could culminate in delegations of teachers and students from one school visiting the other school in person.

Conclusions

While the United States may be more evolved than China in terms of providing free schooling for the majority of its children, there are still many lessons to be learned from China's educational system and cultural changes. For example, Liping Ma's study suggests that the preparation of elementary teachers in China is more effective than in the U.S. in terms of mathematics content knowledge and understanding. This in turn produces young students who have a strong conceptual foundation. Also China has, in a very short time, produced a new crop of teachers who seem to have embraced the new pedagogy of active and collaborative learning despite their own more traditional training. China also seems to have convinced a huge segment of the population to learn English as their second language and they seem to tackle this task with more humor and enthusiasm than is typically seen in the U.S. classes studying a "foreign" language.

China in turn hopes to learn from other nations including the United States as it searches for models for a more democratic system of compulsory schooling. This includes the notion of teaching for diversity within the regular classroom and providing better access to education for children with disabilities. Although a few model schools have been developed that use constructivist instructional strategies, there is some concern among educators that China is not prepared for the outcomes of an educational system that fosters creative and independent thinking and learning.

The most exciting possibilities for gifted education for both countries come from the emerging opportunities for cultural exchange. Many Chinese students come to the United States for graduate studies and China is now currently open to accepting

students and visiting professors from other countries. Although exchange programs that provide for extended visits in another country are the ideal, the INTERNET and other supporting technology creates new possibilities for the exchange of ideas and information on a regular basis.

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Differentiating Instruction for Gifted Middle School Students in Heterogeneous Science Classes*

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The heterogeneity of many American classrooms has created a demanding environment for teachers. The various academic needs of a wide range of students must be met simultaneously in this type of setting. Students with learning disabilities are frequently provided with curriculum adaptations while the special needs of gifted students are often neglected because of their high level of ability. Therefore, a differentiated curriculum is also imperative for gifted students who are expected to reach their maximum potential within a heterogeneous classroom.

To provide for the academic needs of gifted and talented students in my heterogeneous science classes, I have created an enriched unit which utilizes the concepts of curriculum compacting and independent study. The enriched unit on invertebrate animals was planned for gifted and high-ability students who were selected from heterogeneous, middle school life science classes. The purpose of the differentiation was to compact the content for students who are able to learn at a quicker pace. Because science is a highly content-based subject, I did not believe that the selected students would have the material pre-mastered upon entry into my class. Therefore, I provided these students with a guided worksheet packet which supplemented their independent reading of the invertebrate chapters from the textbook. These students were given time in class to learn the concepts on their own by reading the chapters and examining the provided specimens on display. The students were then tested to determine their proficiency concerning invertebrate phyla. Students who scored above 80% were then eligible for the independent study projects which included one teacher-selected project and one student-selected project. Because the students spent less time on grade-level material, they gained time to work independently on alternate activities that explored a greater scope and depth of invertebrate concepts. This enriched unit created a more challenging learning opportunity for student-selected study.

Teacher-selected Independent Study Project

After approximately one week of class time, the students had completed the guided worksheet packet and had prepared for the test of content proficiency. The students who passed the test of content proficiency with at least an 80% were eligible to continue with the teacher-selected independent study project. The students were required to use the library to complete a research guide about an invertebrate phylum. Then, they had to create their own invertebrate which matched the characteristics

of the phylum that they chose to research. They also had to create a three-dimensional model of their invertebrate and then write a creative story about the animal. When students submitted their completed invertebrate projects, I assessed the projects with a rubric.

Student-selected Independent Study Project

Upon completion of the teacher-selected project, the enriched students were permitted to select their own topic and project on invertebrates. I had compiled a topic menu and a project menu to provide students with ideas for developing their own independent study. Although students were allowed to develop an idea that was not listed, all students opted to select a topic and project from the menus. Students were required to describe their proposed projects on their contracts so that I could approve them. Although the students had been informed that their projects would receive feedback on an evaluation form instead of a grade, they became intrinsically motivated to complete the work to the best of their abilities. Upon evaluating the projects, I was very satisfied with the overall quality that was exhibited by the students. Examples of student-selected projects follow:

- Starfish: One student chose to research the anatomy of starfish. After having completed thorough research, he was permitted to dissect a specimen during class using a student dissection manual. Then, he created a three-dimensional, clay model of a dissected starfish arm with color-coded parts to display the internal anatomy.

- Spider Myths: The Greek myth of Arachne was read by a student. He then summarized the myth and created his own spider myth called, "The True Story of Spider Man." Finally, he compared and contrasted his myth with the Greek myth of Arachne.

- Spider Webs: Another arachnid project was completed by a student who researched the various designs of webs constructed by different types of spiders. Then, he created models of those webs by using hot glue.

- Insect Display: Five insects were researched in-depth by a student. This student then created a three-dimensional clay model of each one which displayed its physical characteristics. He also described the characteristics and life style of each insect on note cards which accompanied each model.

- Bug Book: Another student researched a wide variety of insects and created an alphabetical bug book which included colored, hand-drawn pictures of the bugs as well as an informative sentence about each one. He then presented this elementary level book to his younger brother.

Management Considerations

Selected students were given a contract that explained the requirements, expected working conditions, and assessment for the independent study. Each student received a folder which included all of the independent study materials. Along with the contract, the folders included a laminated pass to the library, daily progress sheets, a fifteen-page guided worksheet packet to be completed while independently reading the two chapters on invertebrates in the textbook, and an invertebrate research guide to be completed while working in the library. The folders were periodically checked for students' progress. The enriched students were permitted to use the library as needed for quiet study and research. Students used their laminated passes to allow for unrestricted access to the library. When students were working within the classroom, they were seated at lab tables in the back of the room. They were permitted to leave their seats to get materials as needed. Students left and entered the room through the back door of the classroom so that all movement would occur without disturbing the class.

Work pertaining to the regular curriculum was graded. The guided worksheet packet used while reading the textbook was graded for accurate completion. The proficiency test was graded to determine eligibility for continuation in the enrichment program. The teacher-selected independent study was graded because it was completed in place of the normal invertebrate project which was assigned to the regular education students. The student-selected independent study did not receive a letter grade. Instead, an evaluation form was used to provide feedback.

Challenges

Through the course of implementing a differentiated curriculum for gifted and high-ability students, I encountered many challenges as well as successes. Initially, I struggled with selecting students for enrichment. I was not able to use a pre-test for this purpose because the enrichment program was designed to allow the students to learn the invertebrate content at a quicker pace before being tested. Without pre-test scores, I relied upon prior academic achievement to determine which students would be most capable of independent learning. These students were then provided with the opportunity to apply for the enrichment program. From the applicants, I made the final selections. The purpose of the application process was to ensure that the most committed students would be selected. After making the selections, the enrichment program ran smoothly until some students lost eligibility due to low test scores. Therefore, these students were placed back into the regular class to ensure their success with the required content. Eventually, I discovered that tracking the progress of the remaining students was quite challenging as a result of their different paces and the need to take their work folders home. To resolve this problem, I periodically told students that they must leave their folders in

the room for my review. Then, I recorded their progress on a master tracking sheet.

Conclusion

When students submitted their teacher-selected projects, I was pleased with the quantity of the research and the quality of their models. I was also very satisfied that many of the student-selected projects were creative and displayed quality work. I think the program was a positive learning experience for the students and myself.

During the final week of the independent study program, I provided a questionnaire to the enriched students to evaluate the program and their own work. The responses on the questionnaire affirmed my belief that gifted and high-ability students appreciate the opportunity to learn the content at a quicker pace so that they can be provided with a more challenging and self-directed learning environment. Upon final reflection of my experience with implementing a differentiated curriculum for gifted and high-ability students, I have realized that the success of the enrichment program depended not only on the effort of the participating students, but also on my organization, flexibility, and preparation. I have learned valuable skills through this experience which will help me to better meet the needs of students with high ability levels. Therefore, I have evolved into a more adept teacher. Hopefully, the process used to design this invertebrate unit will enable other teachers to successfully implement a differentiated curriculum in their own classrooms.

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*In this article Mr. Miller presents his experiences with differentiated curriculum in his classes. The role of Dr. Willard-Holt was to assist in developing the curriculum unit and in preparing the manuscript for publication.

Let's Get Real™: An Innovative Problem-Based Learning Program

Dan G. Holt, Ph.D.
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Problem-based learning arises from the constructivist perspective of education, which in turn has its roots in the thinking of John Dewey and Jean Piaget. Dewey advocated immersion of students in hands-on, real-life problem solving as a way of making meaning (1916). Piaget posited that learning occurs when one is puzzled by a situation. Working through that puzzle leads to cognitive change (1985). More recently, Brooks and Brooks stated that "posing problems of emerging relevance is a guiding principle of constructivist pedagogy" (1993, p. 35). Savery and Duffy (1995) stated that problem-based learning may be one of the best exemplars of a constructivist learning environment. The strategy has gained nationwide popularity, as evidenced by the promulgation of several PBL networks (Torp & Sage, 1998), and credibility through a number of studies demonstrating its positive effects on student achievement and motivation (Gallagher, Stepien, & Rosenthal,1992; Stepien & Gallagher,1993; Stepien, Gallagher, & Workman,1993; Torp & Sage, 1998).

Let's Get Real™, a competitive problem-solving program now in its sixth year, exemplifies problem-based learning and authentic outcomes in the context of a business-school partnership. *Let's Get Real*™ (LGR) challenges teams of sixth through twelfth grade students to solve actual business problems posed by corporate co-sponsors. In this way it seeks to prepare students for employment and furnish corporate co-sponsors with an untapped resource. Teams of two to six students submit written solutions to be judged by corporate executives, scientists and engineers. Solutions are judged based on practicality or implementation potential, effectiveness of the solution, the cost and benefit of the solution, creativity/originality, development of the idea, and documentation of the development of the solution. Teams advancing to the finals present their solutions orally at each sponsor's corporate headquarters.

Topics for problems may include, but are not limited to, the following: environmental issues, manufacturing, distribution, product formulation, chemistry, software creation, facilities design, engineering, marketing, personnel issues, etc. An example of a successful problem from Hershey Foods Corporation follows: "Hershey receives cocoa beans in burlap bags, yielding over one million pounds of empty bags per year. The most efficient way to empty the bags is to split them down the front, making the burlap unusable as bags. Previously, the used burlap had been sold to a carpet company to be used as backing. The carpet company has discovered a cheaper, cleaner material to use for backing. Taking the burlap to a landfill will cost the company $40,000 annually, in addition to being harmful to the environment. What are other cheaper, environmentally friendly ways for Hershey to dispose of the burlap?" The winning team for this problem consisted of four seventh graders (who beat teams of high school seniors). This

team appeared at the oral presentation wearing burlap vests and ties, toting burlap toys, with a Power Point presentation. They had investigated a number of possibilities, with the most fruitful appearing to be a landscaping company who would shred the burlap and use it for mulch. Although Hershey did not use the solution precisely as presented, the team's research led Hershey to another alternative that resulted in a significant cost avoidance.

Teams may consist of students from different grades and/or different schools. Sixth through twelfth grade students from all school settings (public, private, parochial, charter, vocational, alternative, or home schooling) are eligible. Even students in mentoring programs or scouting programs are eligible to enter. Each team must have an adult coordinator, and coordinators may facilitate multiple teams. No entry fees are charged and students from anywhere in the United States are eligible to enter.

There are a number of benefits for students and corporate sponsors. *Let's Get Real*℠ is an opportunity for students to apply their problem-solving skills to authentic business situations, to work together in teams, to become better acquainted with and prepared for the business world, to make individual impressions on a major corporation, and to have fun! Regarding benefits for corporate sponsors, *Let's Get Real*℠ provides an opportunity for businesses to become directly involved with young people, to encourage them to study in fields of interest to the corporation, to gain appreciation for the accomplishments of young people, and to derive benefits from the solutions generated by minds not constrained by "the box." Corporations also benefit by publicly supporting education in their own communities.

The following quotes are representative of participants' reactions to the program:

> *Let's Get Real*℠ is an exciting program that can provide several benefits to the sponsoring company at a very low cost. The company contributes to a better educated student who is more aware of the types of opportunities in Corporate America. The company also receives valuable PR and good will. If the problems for the competition are well chosen and presented, the competition also represents a chance of immediate payback of magnitudes higher than the cost of the program. But, perhaps most importantly, meeting bright enthusiastic students and listening to their outstanding presentations is inspiring and provides motivation for the employees who are lucky enough to attend the competition (Corporate sponsor).

> The *Let's Get Real*℠ program has become an academic competition that brings authenticity to the performance-based activities that I do in my classroom....[It] allows businesses to bring realities to the life of my students. Grade is still important to my students, but when they tackle the actual corporate problems, they also know that the problem is real and their proposed solution could be implemented. They know that corporate and business executives will be looking over their problems. This becomes a driving force to my students...[They] understand that what they did meant something beyond a grade; professionals looked at what they did and gave it value (Teacher).

Although not limited to gifted students, LGR is particularly appropriate for them. The program embodies a number of the NS/LTI Principles for Differentiated Curriculum. LGR involves interdisciplinary content; analyses reveal that teams have integrated language arts, technology, mathematics, economics, science, social studies, and the visual arts in their solutions. Problem solving and higher order thinking form the entire basis of the program. The problems by nature are complex; otherwise, corporate specialists would have already solved them. Inquiry and in-depth research are involved as the students investigate their solutions and verify them through experimentation. The students are expected to work independently in creating their solutions, with the coordinator playing a strictly facilitative role. The written solutions and oral presentations are high level products which are evaluated by multiple audiences, including the teams themselves, the coordinator, and possibly peers. Ultimately these products are judged by corporate employees embodying authentic audiences. These factors interplay synergistically to create rich and challenging learning experiences for gifted students.

Information on entering the competition or becoming a corporate sponsor may be found at www.LGReal.org or by emailing Dr. Dan Holt at: LGReal@usa.com

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BOOK REVIEW FROM GIFTED EDUCATION NEWS-PAGE – DECEMBER 1999-JANUARY 2000

Musical Prodigies: Perilous Journeys, Remarkable Lives by Claude Kenneson (1998). Amadeus Press, Portland, Oregon.

"My earliest musical memories are from the time when I was a baby and crawled under my dad's piano. While he played I remember lying there looking up at the struts and sounding board, and the sound would come down and envelope me. I loved being there under the piano while he practiced. . . ." (Bejun Mehta, p.336, from **Musical Prodigies** (1998) by Claude Kenneson).

The author makes clear throughout this fascinating examination of the development of musical prodigies that family environment interacting positively with the unfolding of the child's natural abilities are the most important factors in developing young, highly gifted musicians. But the individuals Kenneson discusses are beyond giftedness. They are so extraordinary as to defy current explanations from developmental and educational psychology. The early lives and precocious achievements of many of the great ones are discussed here -- Mozart, Paganini, Clara Schumann, Heifetz, Casals, Piatigorsky, Rubinstein, Gould, Argerich, Cliburn, du Pré, Yo-Yo Ma and other concert artists of the violin, piano, cello, string bass and guitar. Precocious composers (e.g., Mozart, Samuel Barber), conductors (e.g., Pierino Gamba, Lorin Maazel) and a singer (Bejun Mehta) are also included.

Kenneson, a music professor emeritus at the University of Alberta (Canada) attempts to make sense of these "miraculous" early achievements by describing his experiences in teaching two young children to play the cello -- Eric Wilson and Shauna Rolston. In the chapter entitled, "Reader's Guide," Kenneson discusses some of the common features of the prodigies he has taught and studied for his book, such as: early rapid development, intensive encounters with music in a family environment that supports musical accomplishment, the nurturing influence of families that rearrange their lives and work to foster their child's musical development, and the importance of using music in a playful manner during the early years. What is clear to this reviewer is that successful musical accomplishment at a young age (beginning at three or four years) requires intensive early exposure to musical performance, primarily through at least one parent who is a skilled musician. Additionally, music teachers other than the parent(s), come into the picture early in the young prodigy's musical life beginning at three to eight years. These teachers appear to be almost as important (or in later years, more important) than parental influences. The combined influences of parents and private music teachers produce a synergy effect in these precocious children's lives that advances their musical accomplishments to the highest possible levels.

Kenneson has done a great service to educators and parents by writing this excellent book. What positive use can they make of his pertinent descriptions and insightful conclusions? First, it is clear that numerous opportunities for the growth of these extraordinary children must be provided through schools of music, music teachers and music programs in public and private schools. Unfortunately, the public schools of America are currently ignoring their music education programs to the detriment of children who range from very capable to highly gifted to extraordinary accomplishment. In most cases, the burden must therefore fall on perceptive parents and teachers who are sensitive to musical ability at an early age, and to great music institutions such as Juilliard and the Curtis Institute.

For many years, this reviewer has been concerned with the role of children's sensibility levels in their mental development as expressed through heightened awareness and responsiveness to particular aspects of their environment such as tones, rhythms, melodies and musical performances. Clearly, musical prodigies have sensibility levels to musical sounds and rhythms that are far beyond those of average children. In addition, they are endowed with advanced sensori-motor abilities that enable them to use a violin bow or strike piano keys in a coordinated and rhythmical manner. Their accelerated cognitive development also leads to facility in reading music notations. Can

children's interest in and responsiveness to music be enhanced by the proper types of exposure to music at a young age? From reading **Musical Prodigies** and other related works (described below), it appears that young children benefit from organized music programs. But the rare musical brilliance described by Kenneson is a different story -- unique types of mental development must also be present (as a result of the child's genetic, psychological and physiological makeup) to bring musical aptitude to the level of a prodigy. Other books that will help to illuminate the reader's understanding of musical prodigies are as follows:

Developing Talent in Young People by Benjamin Bloom (1985, Ballantine Books) and **Music Talks** by Helen Epstein (1987, McGraw-Hill). Both of these books emphasize the role of music education during the child's formative years. Bloom's book (based on psychological studies and interviews) has several chapters on the lengthy and arduous music education of concert pianists. Epstein has interviews with many outstanding musicians such as Itzhak Perlman, Cho-Liang Lin, Midori and Yo-Yo Ma. She also describes the work of the violin teacher Dorothy DeLay (Juilliard School of Music) with violin prodigies.

Isaac Stern: My First 79 Years by Isaac Stern, written with Chaim Potok (1999, Knopf). Here is the extraordinary life and professional career of this joyous, world-renowned musician. Stern's family immigrated from Russia to San Francisco where he began his accelerated progress and success on the violin starting at about eight years.

Thomas Wolfe (1900-38): An Appreciation on His Centennial by Michael E. Walters Center for the Study of the Humanities in the Schools

The United States celebrated the centennial of the birth of Thomas Wolfe in October 2000 when a commemorative stamp was issued in his honor from his hometown in Asheville, North Carolina. (He died tragically of tuberculosis of the brain at thirty-eight years.) The original completed manuscript of his masterpiece, **Look Homeward Angel** (1929), as he wrote it without editing has been published by the University of South Carolina Press under the direction of Arlyn and Matthew Bruccoli. This Centenary Edition (2000) uses the original title, **O Lost: *A Story of the Buried Life***. The manuscript and notebooks related to the creation of this masterpiece were recently displayed in the New York Public Library's main building on 42nd Street where I had the wonderful opportunity to visually experience the creative artistry of a major American literary genius.

Look Homeward Angel has been described as the classic book of an American who is coming-of-age, and a novel for gifted and sensitive adolescents similar to **Catcher In the Rye** (1951) by J.D. Salinger. Upon re-reading **Look Homeward Angel**, I find it is also a novel concerning the development of a gifted individual. Throughout the book, the author describes how the main character, Eugene Gant, becomes interested in and devoted to the craft of writing. In 1929, when Wolfe's book was published, the written word and reading were considered to be more important human activities than they are today. Wolfe composed this book in the same format as Virgil (**Aeneid**), Dante (**The Divine Comedy**) and Milton (**Paradise Lost**), all epics of the human condition. The epic that Wolfe authored was about the self, and how it interacts and relates to the American experience. It is simultaneously an autobiographical and national epic that describes the positive and negative qualities of the American psyche -- the ability to transcend one's environment, and to express the democratic and progressive spirit of the United States.

His writing style (poetic prose) was as important as its content, and it is obvious that he was influenced by Walt Whitman's **Leaves of Grass** (1855). This poetic prose enables the reader to share Wolfe's perceptions and visions by means of various literary techniques such as reminisce, repetition and rhythmic patterns of expression. In addition, his style throughout the book was the print version of techniques used by French Impressionist painters. By giving readers mental images of past experiences, they almost believe these events are happening to them. Another writer who influenced Wolfe was the French author, Marcel Proust (**Remembrance of Things Past**, 1913-27). Like Proust, he makes the reader a part of his personal memory, an excellent example of literary genius at work. By reading **Look Homeward Angel** gifted students can learn how Wolfe made his artistic craft appear so effortless and unique.

The citizens of his hometown were upset with **Look Homeward Angel** because Wolfe described the social reality of Asheville, North Carolina with honesty. He wrote about anti-semitism, racism, sexism, homophobia and class attitudes that were part of the mental fabric of his environment. For Wolfe, the biblical injunction, "The truth shall set you free" (John 8:32), was a personal code of behavior. In 1998, the childhood home he wrote about was seriously damaged in an apparent arson attack. However, his classic of the American experience, **Look Homeward Angel**, will always be with us like a lighthouse for the American soul. ♯ ♯ ♯

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Although the new educational initiatives proposed by the Bush Administration have many commendable features concerned with educational accountability, they do little or nothing to address the selection and education of gifted students. For example, requiring school districts to set up annual testing programs at each grade level will not help to identify young inner-city and middle-class children who would benefit from a rigorous curriculum that goes beyond topics covered by annually administered standardized tests. Such testing programs for increasing accountability may in fact lead to a more lock step, test-driven curriculum that concentrates on raising group averages in schools, districts and states. A call for flexibility in identifying and assessing children from gifted and other special populations might cause federal regulators to focus on how to effectively serve these children while fulfilling accountability expectations. Now is the time for all gifted advocacy groups to get their "two-cents" into the political fray.

For many years, educators who work with young gifted children have argued that differentiated preschool and primary programs are a necessary part of the elementary school curriculum. As the article by Susan Grammer shows, there has been strong resistance to establishing such programs in the public schools. Her comprehensive article provides parents and teachers with specific information about identifying and teaching young gifted children, and advocating for their full educational development. Ms. Grammer's background work is unique because she not only relied on journal articles, but she also contacted many individuals directly via email and telephone to obtain their viewpoints. The information she obtained directly from such leaders as Joan Smutny, Joseph Renzulli, Karen Rogers, Julian Stanley, and many parents and teachers has produced a lively, informative and up-to-date summary of the state-of-the-art of this gifted education area.

For many decades, James Webb has been concerned with publishing high quality books in the gifted field. His article on the mislabeling of gifted children clearly shows that he has maintained his skills as an insightful writer and counseling psychologist. He originally presented this work at the annual meeting of the American Psychological Association in August 2000. It is important that giftedness not be confounded with Attention Deficit Hyperactivity Disorder (ADHD) or any of the other diagnostic categories discussed in this article. In addition, Edward R. Amend explains how Asperger's Disorder is becoming confused with giftedness. Michael Walters' concluding essay on George Orwell stresses the accomplishments of this great writer.

Maurice D. Fisher, Ph.D., Publisher

Identification and Education of the Young Gifted Child: A Parent's Perspective

By Susan Grammer Houston, Texas

To Be or Not To Be.....Gifted?

Don't worry. We have plenty of activities to challenge any five year old. Besides, by second grade the kids' abilities all seem to level out anyway. -- A kindergarten teacher

This comment was supposed to reassure one mother about enrolling her wide eyed, chess playing, encyclopedia toting, adding and subtracting four year old in kindergarten the next fall. After observing as the class was gently introduced to the concept of rhyming words, she wondered what her son (who had spontaneously initiated rhyming games since sometime before the age of two) would be doing in this lesson next year. Hopefully not turning somersaults and terrorizing the teacher! She also wondered what could possibly make a child who spent his infant to preschool years in overdrive (absorbing information like a nearly desiccated sponge), slow down long enough to learn on a level playing field by second grade. The next fall, after further assurances from the school counselor that the kindergarten could meet the needs of all children, no matter how bright, his parents sent him off to school. Not wanting to appear pushy, they chose not to mention that he had begun reading on his own, was very advanced in math and that his logical thinking skills and capacity for empathy were sometimes astonishing. "Since people on the street notice and comment about him constantly," they recall thinking, "it will certainly be obvious to the teacher as soon as he walks into the room. Won't it?" It wasn't.

Miraca Gross (1999) reported that, although 90% of highly gifted children in her study were reading before age 5, only 30% of the parents felt comfortable telling the school. Even prior to school entry, they had felt overt hostility from society in general towards their intellectually precocious children and feared being viewed as pushy or overly ambitious.

In "I Can Do It Myself! Reflections on Early Self-Efficacy," Elizabeth Maxwell (1998) describes the children she has studied as "active agents in their own learning processes. They exert pressure upon parents and other adults in their environment to a sometimes amazing extent." Maxwell says that parents of the highly and profoundly gifted usually become aware quite early of their child's precocity and quickly learn that, in sharing stories of their children's exploits, they are likely to be disbelieved and often labeled as pushy or ego invested.

Does it really matter?

Does it really matter whether highly able learners are identified as such during the early school years? And, whether identified or not, does it matter whether gifted or potentially gifted children are offered an educational opportunity appropriate for their advanced intellectual abilities? Or, as is often the assurance from the teacher or school counselor when parents timidly ask these questions, is it really true that "since she is a bright and able learner, she'll be fine," and "if she's truly gifted now, she'll still be gifted in a few years when it is easier to get into the program"?

While parents and teachers of young able learners struggle at the lack of widely accepted, definitive answers to these dilemmas, a review of published research in gifted education seems to provide a very difficult to ignore, crystal clear picture of young potentially gifted children languishing unchallenged in the normal classroom, repeating concepts they learned on their own months or years before and often learning, within days or weeks of school entry, to hide their abilities and inquisitiveness from teachers and peers. "These kids are smart," says Joan Smutny (personal communication, fall 2000). "They figure out very quickly how to fit in." Robert Sternberg (email communication, fall 2000) maintains that "what happens is that bright kids get bored, their attention starts to wander, they lose interest. The numbing of the mind results in detrimental effects."

Unfortunately, most of the documentation from the published literature on the detrimental effects of mis-identification and underserved young gifted children has not yet filtered down to parents, classroom teachers and administrators. Therefore, while parents and gifted teachers fight to have young able learners identified and/or served, many of the brightest children, according to Smutny (2000) are, "waiting out the years until third or forth grade, when most schools formally identify children as gifted, (and) have become bored, resentful underachievers." Smutny et al. (1989) cite two particular studies on page 130: Sutherland and Goldschmid (1974) noted evidence that truly superior children, perceived by their teacher to have only average intelligence, decline in intelligence test and achievement test performance when compared to equally superior children whose abilities were recognized by their teachers. According to a separate study by Martinson (1961), gifted first graders served with special programs gained an average of two academic years during a single nine-month period, while gifted children in regular classes gained the usual one year.

Susan Johnsen, Associate Dean at Baylor University, reports (email communication, fall 2000) that "over a three year period, achievement scores for young potentially gifted students from lower income backgrounds who were not served in gifted

programs dropped at twice the rate as a comparison group (Johnson and Ryser, 1995).

Karen Rogers of St. Thomas University (email communication, fall 2000) asserts that much of Julian Stanley's work with mathematically talented children suggests that "repetition beyond mastery can result in relearning math and science concepts and skills inaccurately." Stanley (email communication, fall 2000) laments the fact that "these extensive studies seem, unintentionally, to be a well-kept secret from most gifted-child specialists, but not from many parents and their bright children." Rogers also suggests that "some of the work Robert Sternberg and his group have done on 'knowledge acquisition' will lead you to the same set of conclusions."

Patricia Weber (1999) presents a startling case study, a "tale of two boys", which clearly illustrates the need for early identification of and programming for gifted students. Her article follows the academic progress of one child beginning in second grade, when his teacher described him as a child for whom each new day in the classroom was fascinating. The overall picture of the student was "one of enormous academic and social success accompanied by a feeling of satisfaction with life." Descriptions of the same child as an eighth grader portrayed a boy who delighted in tormenting his teachers and who was a "total, abject failure." Interestingly, in second grade the child had been a viable candidate for the gifted program, receiving high test scores. Reservations expressed by various individuals involved in the identification process, however, mostly based on his lack of organizational skills and "messy desk," kept him out of the program. Between the second and eighth grades, his academic grades, achievement test scores and behavior showed a steady decline from year to year. Although the author cautioned that there is no proof that inclusion in a gifted program would have rescued this boy's academic achievement and behavior, she strongly believes that there is "a high probability that nurturing his areas of potential talent would have had a positive effect and maintained the high interest in learning he displayed as a young boy." Anecdotal or not, this case study points to the importance of early identification and intervention along with "the necessity for a heightened awareness on the part of parents and educators regarding the nature of gifted children and the types of educational programs from which they might benefit."

As Weber further discusses, young children, desperate to please their teachers, will often eagerly go where led. When roadblocks are put in the way of a young child's curiosity and advanced thinking skills, "the young child has no recourse but to accept the road before him," she writes. Teachers of young gifted children, she continues, "have often noticed that by the time the student has reached second grade, he has already begun to close the door to accepting challenge as exciting, enjoyable and intriguing, and opened the door to rote, predictable, safe learning."

Joseph Renzulli of The National Research Center on Gifted and Talented and The University of Connecticut (email communication, fall 2000) was recently reminded of the importance of special programs targeting young able learners as he watched a young person at work on an area of special interest. "I saw the glow in a young man's eyes that suddenly reminded me what learning is really all about – competence, pride, satisfaction, achievement, and most of all, enjoyment," he wrote. University of Connecticut graduate student Robin Schader (email communication, fall 2000) stresses that "learning that respects individual differences and abilities is a powerful motivator -- and far more effective than learning to earn a grade or satisfy parents and teachers. After all," she continues, "our end goal should be to develop lifelong learners."

Dorothy Funk-Werblo, Ed.D., Independent Educational Diagnostician in Houston, TX and International Coordinator of Gifted Programs for MENSA (called Dr. Dot by "her" children) has known many gifted children and adults during her long and multifaceted career (personal communication, summer/fall 2000). She likens our young intellectually gifted children, unchallenged in classrooms around the world, to seedlings which emerged prematurely. She reminds parents and teachers that "if you don't attend to the needs of the child, he doesn't thrive, just as a plant without water will not thrive." Potentially gifted children are not just dormant seeds during these early years. Their intellect is in dire need of exercising the thought processes normally encouraged in the classroom only in later years.

Parents and classroom teachers who doubt the potential detrimental effects of not serving young intellectually gifted children should study Stephanie Tolan's 1996 essay, "Is It A Cheetah?" (1996) carefully. Tolan likens the unchallenged gifted child to a cheetah, biologically capable of sprinting 70 mph to catch an antelope for dinner, but confined in a 10X12 foot cage and fed a diet of zoo chow. "Many highly gifted children sit in the classroom the way big cats sit in their cages, dull-eyed and silent," Tolan writes. "Some, unable to resist the urge from inside even though they can't exercise it, pace the bars, snarl and lash out at their keepers, or throw themselves against the bars until they do themselves damage."

Smutny et al. (1989, p. 99) remind parents that by the end of third grade a child will have spent nearly half of his life thus far in the school environment. "During those four very important years," she cautions, "children also develop feelings for school and fix their images of themselves as students." Smutny's message to parents and teachers is a strong one (p. 130). "The years from ages 4-7 are intensely critical to the maintenance of your child's potential giftedness, which is a process responsive to cultivation and vulnerable to neglect and destruction."

The danger of under-identification of gifted and potentially gifted children is summarized quite succinctly by Tracy Weinberg, Associate Director of Texas Association for the Gifted and Talented (personal communication, fall 2000). "If

a skill doesn't get recognized," he offers. "it doesn't get used."

OK, so it is important to serve these children early. Why is identification so difficult?

Rings on her fingers and bells on her toes.
She'll be obviously gifted where ever she goes.

Parents who have spent the preschool years in awe of an intellectually precocious child, constantly adapting to her unique needs and nearly as constantly being admonished by friends, family and strangers, alike, not to push her academically, may naively assume that the child's classical "gifted" behavioral characteristics will be exhibited in the classroom setting. And many elementary school teachers, asked to "watch" for signs of giftedness in their primary grade children, consciously or unconsciously expect them to present themselves with bells ringing and horns blaring. Isn't a gifted child in need of intervention obvious to anyone whose path he crosses? And, if parents or a teacher suggest testing, won't all gifted children score "gifted" on tests?

Unfortunately for the children, the answer to each of these questions is a resounding "no!" This is especially true in the structured environment of school, where even the youngest child often works very hard to conform to the expectations of the adult who is running the show. After waiting, often with great anticipation and wild expectations, to start school, the child is first taught how to follow the rules – and at the same time how *not* to ask questions, how *not* to explore the nooks and crannies of the classroom, how *not* to break out of line to examine an interesting bulletin board in the hallway, and in some cases, *not* to open the books in the library which he is not yet able to read fluently. Returning to Tolan's cheetah metaphor, "children in cages or enclosures, no matter how bright, are unlikely to appear highly gifted; kept from exercising their minds for too long, these children may never be able to reach the level of mental functioning they were designed for." Unfortunately, unlike young cheetahs who all look alike, young gifted children are not all gold with black spots – they are masters of camouflage.

Susan Zimlich (email communication, fall 2000), an elementary school teacher of the gifted, agrees that "classroom teachers do seem to notice those 'with bells on their toes' the best. One of the things I have tried to address is how to recognize gifted students," she offers. "I did (provide) in-service about the screening process ... included information about characteristics and behaviors of gifted students....The problem is: how much are teachers actually listening? Sometimes teachers can be the worst students."

According to Joyce VanTassel-Baska (2000), most young gifted children do not demonstrate great strength across all domains and areas. Consequently, their particular area of giftedness "may not be evoked by the school environment but shine in the context of the community." One study (Walker 1991, p. 20) demonstrated that kindergarten teachers not trained specifically in gifted identification accurately identified only 4.3% of children later identified as gifted. T. M., mother of a son who entered college at age 12 recalls:

...Nobody, myself and various school staff included, was looking at this six year old and saying 'if he keeps on at this rate he'll be in college by the time he is 12'. . . .numerous points along the way, I think if we hadn't assertively advocated. . . we would have lost him . . .(email communication, fall 2000).

Identification of the young gifted child can be less than straightforward for numerous reasons, not the least of which is the very uneven development of children from ages 4-7 in the normal population. This makes establishing the "norm" difficult. In addition, many gifted children tend to learn and develop in "chunks" and "spurts" resulting in a child passing through many developmental or intellectual milestones very quickly and hanging back on others.

The mother of one first grader (personal communication) describes the way her son's reading skills soared during a one week period in kindergarten:

The summer before kindergarten and early in the kindergarten year, he seemed stuck at the stage of sounding out three letter words in Bob Books. During the Thanksgiving holiday I got tired of reading the names of his favorite Pokemon to him and commented that, since the names were all spelled phonetically, he should be able to read them himself. Three days later he was reading all the names, the text in the book, headlines and captions in the newspaper and captions under the pictures in our Children's Encyclopedia.

Beth Motta has this to say to parents who suspect their child needs gifted programming when the school does not agree (email communication, fall 2000):

My oldest daughter was 5.5 when her public school tested her for giftedness. They used K-BIT, a 2-part 15 minute test. They told me her composite score was 126, so she was not eligible for gifted intervention in 2nd grade. I had her privately tested with the WISC - III and the Stanford-Binet LM (since she hit the ceiling on 5 subtests on the WISC - III) and that 126 was blown out of the water. . .she is actually EG/PG (exceptionally gifted/profoundly gifted). . .so find out who will do the tests. . .what tests they will give. . .if you feel the score is too low, you might be right.

According to Joan Smutny, those involved in the identification process must be "very flexible and perceptive" when assessing young children for inclusion in or exclusion from a gifted program at a young age (personal communication, fall 2000). Tests are important only as a part of the assessment, she feels. "Using an IQ score to begin to measure the scope of giftedness is like taking the blood pressure of a trauma victim with multiple

injuries." (Smutny et al., 1989, p. 109).

So, What Do We Do?

According to Linda Silverman (1995), "we have a moral obligation (to meet the needs of the gifted). They need the opportunity for continuous progress: this is a basic educational right. All children have the right to learn new concepts in school every day." This moral obligation should also hold true for the young child who enters kindergarten or first grade having mastered most of the skills required for graduation or with the ability to master them very quickly upon their presentation.

Joyce VanTassel-Baska (2000) writes, "to deny services to students clearly advanced in reading, mathematics, the arts or other domains because they have not been formally assessed calls into question a school system's capacity to respond to individual differences. . . ." She laments that identification is "one of the most common difficulties in program development cited by school district personnel and state department coordinators. . .until our beliefs about identification change, little progress can be made in developing a better system that resolves all of the issues noted."

The goal of all parents and educators should be to guarantee that every child will maintain a sense of wonder about the world and the drive to master his environment. Children who are born with a special gift enabling them to master their environment more quickly and in greater depth than other children require a different learning environment than most. There are four things that parents, classroom teachers, gifted education teachers and community members can do to assure highly able learners that their gifts will be developed.

1. Understand giftedness: Read, listen, and communicate with other teachers and parents of gifted children. Only after we understand how these children think can we hope to do what is best for their futures.

2. Help others to understand giftedness: Because identification of the young gifted population is still mired in controversy and often considered elitist, it is up to teachers specializing in gifted education and the parents of gifted or potentially gifted children to advocate strongly for these children. Many parents describe the ups and downs of their gifted child's educational experience year by year, in terms of whether the child's teacher could "get him." One cannot "get" these children by memorizing the characteristics of giftedness from a textbook or from behavioral checklists. Getting to know gifted children and understanding that each is unique and may not fit any currently published checklist is best done by spending time with them and through anecdotes reported by parents and teachers of the gifted. Patricia Weber (1999) urges attempts to alter the long held beliefs of classroom teachers and administrators and to change their vision of giftedness, helping them to understand the unique needs of gifted children. Weber feels that many teachers have deeply ingrained beliefs and biases which may not change even once an individual has voiced acceptance of the new data. "That is why educators may nod in agreement," she writes, "and give vocal acceptance to the research that validates the necessity of meeting the needs of young gifted students, while deep within they harbor a mental model that says 'they're too young, they're too immature, and they're not ready.'" When a teacher's "mental model" tells him that children cannot be gifted at a young age and do not need differentiated curriculum, all potentially gifted children in his charge will suffer.

Weber suggests that teachers of the gifted could help classroom teachers or initiate challenging activities in the regular classroom prior to making formal identification. Classroom teachers could then see immediately which able learners in their charge "are capable of handling concepts and situations far beyond their age mates and become engaged and excited very quickly when given a difficult problem to solve." These children flourish when presented with appropriate tasks, materials and activities. They bloom when given support and encouragement by adults who not only understand them, but truly care about their development as potentially gifted individuals. Weber feels that "helping a child reach that stage would make any teacher feel that the effort was worthwhile."

3. Advocate, Advocate, Advocate: The take-home message from the table of contents and available excerpt of **Standing Up For Your Gifted Child** (2001, in press), a brand new book by Joan Smutny, is advocacy, advocacy, advocacy. Tracy Weinberg, a gifted education professional and father of a gifted child who has benefitted from gifted programming since kindergarten, says that sometimes in educational settings there is a belief that "one size fits all" and maybe "a well meaning but inaccurate concern that they (young children pulled out of the classroom for gifted programming) will miss out on some basic skills." The best way to overcome this bias, in his opinion, is through "personal lobbying, passing along anecdotes, and advocating for your child." (personal communication, fall 2000). Recognizing that the curriculum developed for the majority of children is not appropriate for intellectually advanced children is just as critical as realizing that the normal curriculum is not appropriate for those with many disabilities and developmental delays. Advocacy -- by parents, educators and caring community members -- is the key to providing an appropriate education for all children.

4. Be flexible and perceptive in assessing and serving young gifted children:
Flexibility in Serving Young Potentially Gifted Children -- Because of current difficulties in accurately identifying all young gifted children in school settings, it may be necessary to broaden the scope of educational services available to young able learners. One experienced teacher of the gifted (personal and email communication, fall 2000), whose district does attempt to identify children in kindergarten but uses very conservative criteria for inclusion, believes that young children

would be better served by a loosely identified group or "talent pool." She envisions a program stressing "higher level thinking incorporated into small group activities, i.e., math, reading or science clusters. They would be based more on interest than curriculum. . .I'd go for depth," she explains. "These children may, or may not qualify for more structured GT programs at the upper grades," she cautions.

The high-end learning models developed by Joseph Renzulli and his colleagues, and tested at various locations, take this approach. Renzulli's models (2000) offer enrichment and accelerated material to all interested and capable students, but especially target those students academically ahead of their classmates who "often become frustrated because they are held accountable for daily requirements that are repetitious and unnecessary, and that often lead to boredom, underdeveloped study skills, and disenchantment with school in general." A major component of Renzulli's models is curriculum compacting (Reis and Renzulli, 1999), which provides the opportunity for teachers to assess mastery of required curriculum as well as the opportunity for students to avoid endless repetition of previously mastered (or quickly mastered upon presentation in the classroom) facts and concepts.

Dorothy Funk-Werblo (personal communication, fall 2000) recalls teaching math in the regular classroom and dividing the problems of varying difficulty into columns. Once a child completed a column correctly, he or she was free to move on to the next level of difficulty or to another activity. Those who did not demonstrate mastery continued to practice with guidance. "Practice does NOT make perfect," Dr. Dot stresses. "Only *perfect* practice makes perfect." Once a child has mastered and lost interest in the task at hand, his practice will not be perfect and will do more harm than good. Again, flexibility is critical.

Smutny et al. (1997) and Winebrenner (1992, 2001) have published books which incorporate these concepts and can be particularly useful to parents and classroom teachers in their attempts to meet the needs of able learners in the preschool and early elementary school classroom.

Flexibility in Identification -- According to many experts, conventional identification tools can be used in assessment of a young child's potential abilities, as long as they are applied in a flexible and perceptive way.

Testing or assessment? -- The terms "testing" and "assessment" are often used interchangeably, but they are quite different processes. An assessment might include results of IQ or achievement tests, however these scores alone are not sufficient to provide a true measure of a child's intellectual potential -- especially in the early years. In determining whether a child requires gifted programming, assessment must include information gleaned from the parent, observations or notes made by the professionals who administered any group or individual tests, and if possible, products demonstrating the child's advanced capabilities.

Standardized Tests of IQ, Ability and/or Achievement -- While standardized tests measuring ability and/or achievement are very useful in identifying many older gifted children, test results for young gifted children can be very unreliable.

Applied conservatively and with full respect for all of the available information, tests can be of some use. Misapplied or overused, they are worse than nothing. We must remember that the fact that a test score is (or appears to be) precise, does not mean that it is valid. (Smutny et al. 1989, p.113).

Some researchers believe, and unequivocally state (Gross 1999), that "ability or achievement testing of highly gifted children under the age of 5 or 6 is likely to result in an under-estimation of the child's true performance, rather than an over-estimation." Gross also reminds us that at the age of 4 or 5, a gifted child will often require an hour or more to reach her ceiling on an IQ test, making it difficult to get a true assessment without interference from a "fatigue effect." In addition, young children may have trouble establishing a comfortable rapport with the tester.

Similarly, if a test is timed, a child who is more introspective and thinks about his answers before committing to them might score lower than her potential. Also, recent evidence suggests that many children who process information with a dominant left eye may not perform well on timed tests in spite of being highly capable of answering the questions (personal communication from several sources).

Accurate or Precise Test Scores? -- Any measurement can be *precise* and still not be *accurate*. A child with a 103 fever who drinks a cold drink before putting the thermometer in his mouth will not register an *accurate* body temperature, however the 93 degree reading on the thermometer is still a *precise* measurement. Similarly, depending on numerous factors which can influence a child's performance, the same is true of ability and achievement tests. A child who has an undiagnosed learning disability, or one who is merely overtired, sick, hungry, thirsty, irritated by the lighting or the noise, interested in the poster on the wall, or just plain uncomfortable with the tester, is not likely not to demonstrate his true, or *accurate*, potential.

Group or Individual Testing -- Many schools make use of group ability tests when screening for entry to gifted programs. According to Smutny et al. (1989, p. 115):

". . .group intelligence tests, while they're inexpensive to administer and don't have to be given by trained psychologists, are far less reliable than individual tests. If your child scores 120 in the group screening, she could possibly come in at 140 on an individual test, according to a study of junior high school students. That's why most experts recommend against excluding a child from a program because of an arbitrary threshold. Barbara Clark suggests using a cutoff no higher than 115 if

group screening must be used to inventory the talent pool for a program: even with that level you'll exclude eight percent of the children who could perform at a 135 IQ level on individual tests. According to C. Pegnato and J. Birch in 'Locating Gifted Children in Jr. High Schools: A Comparison of Methods,' published in Exceptional Children (1959), if on the other hand, the school considers only students whose group tests score at 120 or above, they would unfairly eliminate 20 percent of students capable of 136 or higher scores on individual tests."

Test Ceilings and Out of Level Tests -- A score in the 99th %ile means a child scored in the top 1% of test takers. It does not indicate how well the child is capable of performing on a more difficult test. In addition to %ile rankings, raw scores should also be reported, as a child who answers nearly every question correctly will "hit the ceiling" for a particular test or sub-test. The reported score for the current test will be an underestimation of his ability. For this reason, many experts suggest "out of level" testing for children who score exceptionally high on tests for their age level. Tests designed for older children will give the gifted child a better chance to show his true abilities.

Few tests are designed to accurately assess giftedness. Even the commonly used WISC - III was designed only to measure IQ scores in the 70-130 range and has a relatively low ceiling. Experience has shown that for many children, a score at or near 130 on the WISC - III may be a drastic underestimation of the child's true I.Q. (Kaufman 1994; GTWorld, 2000; HoagiesWebsite, 2000).

Similarly, many practitioners (personal communications) have found that scores above 115 on one commonly used group ability test, the OLSAT (Otis Lennon School Ability Test), are not accurate and that many children who later score 150 or above, test only "above average" on the OLSAT.

Composite Scores versus Subscores -- Many professionals believe that young children should never be excluded from gifted programming based on a "composite" score, which is an average of subscores. A child with a composite score of 125 might have subscores ranging from a high of the test's ceiling to a low of barely average. Withholding gifted programming from such a child based on an above average composite score would not be ethical.

Children between 4 and 7 pass through developmental stages at different times, and this progression fluctuates so rapidly – especially within the gifted population - that many moderately and even highly gifted children with uneven development are excluded from gifted programs which examine only composite test scores.

Parent Nomination -- Some researchers believe that, in practice, parent information is underutilized when assessing potentially gifted young children. Miraca Gross writes (Gross 1999): "Research has consistently shown that parents are significantly more successful than teachers in identifying giftedness in the early childhood years. . .More than 90% of parents in Gross's study realized by their child's second birthday that the child was not only developmentally advanced, but remarkably so. . . .the parent sees a much wider range of cognitive and affective behaviors than does the teacher who operates in a setting that imposes greater uniformity of conduct upon the children in her charge. At home, the gifted young child has no need to moderate her behavior for peer or teacher acceptance. . .highly gifted children may learn to camouflage their abilities within the first few weeks of school. . .despite the efficiency and effectiveness of parent nomination, parents of the gifted who try to discuss their children's high abilities with the school are often disbelieved."

Many experts suggest that parent nomination can be more effective when parents make use of "trait lists" which have been designed by those trained in both psychological measurement and gifted education. Smutny et al. (1997) suggest that parents prepare a portfolio of their child's work, and they provide suggestions on activities useful to parents as well as classroom teachers.

Teacher Nomination -- As noted earlier, kindergarten teachers without special training in gifted education are able to accurately identify very few of the children who are later identified as gifted. This does not mean that those children were not gifted at a young age. Many classroom teachers strongly believe that children are not old enough to be "gifted" until later grades and that even if they are, it will not hurt them to relearn the basics along with everyone else. As the studies on which this article is based clearly show, this is a disservice to gifted children. In addition, many checklists which have been designed to assist teachers in identification of young gifted children list traits which might not be exhibited by a child attempting to fit into the school environment, even if he exhibits them all the time outside of school.

Product Portfolios -- Many professionals and experienced parents suggest that parents who suspect their toddler or preschooler may be gifted should begin collecting documentation early. Writing down specific instances where the young child exhibits advanced skills in any area, dating and saving early attempts at artwork and collecting videotapes of precocious behaviors can make assessment much easier when it becomes necessary at school age.

Some programs which attempt to identify young gifted children make use of product portfolios. According to Terry Weinberg (personal communication, fall 2000), this practice holds great promise and is especially useful for identification of children who have borderline tests scores. One parent warns however, that when products for evaluation by a gifted education committee are produced in the regular classroom, it should be kept in mind that potentially gifted children whose strengths are

not obvious to the classroom teacher, and who are bored and not engaging in classroom activities, are likely not to demonstrate their giftedness in an assigned classroom project.

In Summary -- First, Do No Harm

The first rule of medical practitioners everywhere is that no harm shall come to a patient through efforts to heal him. Similarly, we should not harm the intellectual potential of a child through efforts to educate him. The published literature in education suggests, rather strongly, that attempting to educate gifted and potentially gifted young children in the regular classroom with no accommodation for their advanced abilities DOES do harm. These children have a right to learn something new in school every day and to progress, commensurate with their abilities.

There is no teacher, just as there is no parent, who can meet every need of every child at every moment. What we can do as a team, however, is to empower each child with a love of knowledge and with resourcefulness. Just as a parent provides the basic necessities of life to the infant and toddler as he coaches him to take on the responsibilities of self-control and self-care, every teacher should take on the role of coach of the child's mind. Richard Bouchard, director of the Rainard School for Gifted Children in Houston, Texas, says (personal communication, fall 2000) that his job is to *learn* the kids, in the old fashioned "Beverly Hillbillies" sense of the word, rather than to *teach* them. The teacher who coaches the child's mind to learn will empower the child to become his or her own best teacher.

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Mis-Diagnosis and Dual Diagnosis of Gifted Children: Gifted and LD, ADHD, OCD, Oppositional Defiant Disorder

By James T. Webb Gifted Psychology Press, Inc. Scottsdale, Arizona
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Many gifted and talented children (and adults) are being mis-diagnosed by psychologists, psychiatrists, pediatricians, and other health care professionals. The most common mis-diagnoses are: Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (OD), Obsessive Compulsive Disorder (OCD), and Mood Disorders such as Cyclothymic Disorder, Dysthymic Disorder, Depression, and Bi-Polar Disorder. These common mis-diagnoses stem from an ignorance among professionals about specific social and emotional characteristics of gifted children which are then mistakenly assumed by these professionals to be signs of pathology.

In some situations where gifted children have received a correct diagnosis, giftedness is still a factor that must be considered in treatment, and should really generate a dual diagnosis. For example, existential depression or learning disability, when present in gifted children or adults, requires a different approach because new dimensions are added by the giftedness component. Yet the giftedness component typically is overlooked due to the lack of training and understanding by health care professionals (Webb & Kleine, 1993).

Despite prevalent myths to the contrary, gifted children and adults are at particular psychological risk due to both internal characteristics and situational factors. These internal and situational factors can lead to interpersonal and psychological difficulties for gifted children, and subsequently to mis-diagnoses and inadequate treatment.

Internal Factors

First, let me mention the internal aspects (Webb, 1993). Historically, nearly all of the research on gifted individuals has focused on the intellectual aspects, particularly in an academic sense. Until recently, little attention has been given to personality factors which accompany high intellect and creativity. Even less attention has been given to the observation that these personality factors intensify and have greater life effects when intelligence level increases beyond IQ 130 (Silverman, 1993; Webb, 1993; Winner, 2000).

Perhaps the most universal, yet most often overlooked, characteristic of gifted children and adults is their intensity (Silverman, 1993; Webb, 1993). One mother described it succinctly when she said, "My child's life motto is that anything worth doing is worth doing to excess." Gifted children -- and gifted adults -- often are extremely intense, whether in their emotional response, intellectual pursuits, sibling rivalry, or power struggles with an authority figure. Impatience is also frequently present, both with oneself and with others. The intensity also often manifests itself in heightened motor activity and physical restlessness. Along with intensity, one typically finds in gifted individuals an extreme sensitivity -- to emotions, sounds, touch, taste, etc. These children may burst into tears while watching a sad event on the evening news, keenly hear fluorescent lights, react strongly to smells, insist on having the tags removed from their shirts, must touch everything, or are overly reactive to touch in a tactile-defensive manner.

The gifted individual's drive to understand, to question, and to search for consistency is likewise inherent and intense, as is the ability to see possibilities and alternatives. All of these characteristics together result in an intense idealism and concern with social and moral issues, which can create anxiety, depression, and a sharp challenging of others who do not share their concerns.

Situational Factors

Situational factors are highly relevant to the problem of mis-diagnosis (Webb, 1993). Intensity, sensitivity, idealism, impatience, questioning the status quo -- none of these alone necessarily constitutes a problem. In fact, we generally value these characteristics and behaviors -- unless they happen to occur in a tightly structured classroom, or in a highly organized business setting, or if they happen to challenge some cherished tradition, and gifted children are the very ones who challenge traditions or the status quo.

There is a substantial amount of research to indicate that gifted children spend at least one-fourth to one-half of the regular classroom time waiting for others to catch up. Boredom is rampant because of the age tracking in our public schools. Peer relations for gifted children are often difficult (Webb, Meckstroth and Tolan, 1982; Winner, 2000), all the more so because of the internal dyssynchrony (asynchronous development) shown by so many gifted children where their development is uneven across various academic, social, and developmental areas, and where their judgment often lags behind their intellect.

Clearly, there are possible (or even likely) problems that are associated with the characteristic strengths of gifted children. Some of these typical strengths and related problems are shown in the following table adapted from Clark (1992) and Seagoe (1974).

Possible Problems That May be Associated with Characteristic Strengths of Gifted Children

Strengths	Possible Problems
1. Acquires and retains information quickly.	1. Impatient with slowness of others; dislikes routine and drill; may resist mastering foundational skills; may make concepts unduly complex.
2. Inquisitive attitude, intellectual curiosity; intrinsic motivation; searching for significance.	2. Asks embarrassing questions; strong-willed; resists direction; seems excessive in interests; expects same of others.
3. Ability to conceptualize, abstract, synthesize; enjoys problem- solving and intellectual activity.	3. Rejects or omits details; resists practice or drill; questions teaching procedures.
4. Can see cause-effect relations.	4. Difficulty accepting the illogical-such as feelings, traditions, or matters to be taken on faith.
5. Love of truth, equity, and fair play.	5. Difficulty in being practical; worry about humanitarian concerns.
6. Enjoys organizing things and people into structure and order; seeks to systematize.	6. Constructs complicated rules or systems; may be seen as bossy, rude, or domineering.
7. Large vocabulary and facile verbal proficiency; broad information in advanced areas.	7. May use words to escape or avoid situations; becomes bored with school and age-peers; seen by others as a "know it all."
8. Thinks critically; has high expectancies; is self-critical and evaluates others.	8. Critical or intolerant toward others; may become discouraged or depressed; perfectionistic.
9. Keen observer; willing to consider the unusual; open to new experiences.	9. Overly intense focus; occasional gullibility.
10. Creative and inventive; likes new ways of doing things.	10. May disrupt plans or reject what is already known; seen by others as different and out of step.
11. Intense concentration; long attention span in areas of interest; goal-directed behavior; persistence.	11. Resists interruption; neglects duties or people during period of focused interests; stubbornness.
12. Sensitivity, empathy for others; desire to be accepted by others.	12. Sensitivity to criticism or peer rejection; expects others to have similar values; need for success and recognition; may feel different and alienated.
13. High energy, alertness, eagerness; periods of intense efforts.	13. Frustration with inactivity; eagerness may disrupt others' schedules; needs continual stimulation; may be seen as hyperactive.
14. Independent; prefers individualized work; reliant on self.	14. May reject parent or peer input; nonconformity; may be unconventional.
15. Diverse interests and abilities; versatility.	15. May appear scattered and disorganized; frustrations over lack of time; others may expect continual competence.
16. Strong sense of humor.	16. Sees absurdities of situations; humor may not be understood by peers; may become "class clown" to gain attention.

Lack of understanding by parents, educators, and health professionals, combined with the problem situations (e.g., lack of appropriately differentiated education), lead to interpersonal problems which are then mis-labeled, and thus prompt the mis-diagnoses. The most common mis-diagnoses are as follows.

Common Mis-Diagnoses

ADHD and Gifted. Many gifted children are being mis-diagnosed as Attention Deficit Hyperactivity Disorder (ADHD). The gifted child's characteristics of intensity, sensitivity, impatience, and high motor activity can easily be mistaken for ADHD. Some gifted children surely do suffer from ADHD, and thus have a dual diagnosis of gifted and ADHD; but in my opinion, most are not. Few health care professionals give sufficient attention to the words about ADHD in DSM-IV(1994) that say "...inconsistent with developmental level...." The gifted child's developmental level is different (asynchronous) when compared to other children, and health care professionals need to ask whether the child's inattentiveness or impulsivity behaviors occur only in some situations but not in others (e.g., at school but not at home; at church, but not at scouts, etc.). If the problem behaviors are situational only, the child is likely not suffering from ADHD.

To further complicate matters, my own clinical observation suggests that about three percent of highly gifted children suffer from a functional borderline hypoglycemic condition. Silverman (1993) has suggested that perhaps the same percentage also suffer from allergies of various kinds. Physical reactions in these conditions, when combined with the intensity and sensitivity, result in behaviors that can mimic ADHD. However, the ADHD-like symptoms in such cases will vary with the time of day, length of time since last meal, type of foods eaten, or exposure to other environmental agents.

Oppositional Defiant Disorder and Gifted. The intensity, sensitivity, and idealism of gifted children often lead others to view them as "strong-willed." Power struggles with parents and teachers are common, particularly when these children receive criticism, as they often do, for some of the very characteristics that make them gifted (e.g., "Why are you so sensitive, always questioning me, trying to do things a different way," etc.).

Bi-Polar and other Mood Disorders and Gifted. Recently, I encountered a parent whose highly gifted child had been diagnosed with Bi-Polar Disorder. This intense child, whose parents were going through a bitter divorce, did indeed show extreme mood swings, but, in my view, the diagnosis of Bi-Polar Disorder was off the mark. In adolescence, or sometimes earlier, gifted children often do go through periods of depression related to their disappointed idealism, and their feelings of aloneness and alienation culminate in an existential depression. However, it is not at all clear that this kind of depression warrants such a major diagnosis.

Obsessive-Compulsive Disorder and Gifted. Even as preschoolers, gifted children love to organize people and things into complex frameworks, and get quite upset when others don't follow their rules or don't understand their schema. Many gifted first graders are seen as perfectionistic and "bossy" because they try to organize the other children, and sometimes even try to organize their family or the teacher. As they grow up, they continue to search intensely for the "rules of life" and for consistency. Their intellectualizing, sense of urgency, perfectionism, idealism, and intolerance for mistakes may be misunderstood to be signs of Obsessive-Compulsive Disorder or Obsessive-Compulsive Personality Disorder. In some sense, however, giftedness is a dual diagnosis with Obsessive-Compulsive Personality Disorder since intellectualization may be assumed to underlie many of the DSM-IV diagnostic criteria for this disorder.

Dual Diagnoses

Learning Disabilities and Giftedness. Giftedness is a coexisting factor, to be sure, in some diagnoses. One notable example is in diagnosis and treatment of learning disabilities. Few psychologists are aware that inter-subscale scatter on the Wechsler intelligence tests increases as a child's overall IQ score exceeds 130. In children with a Full Scale IQ score of 140 or greater, it is not uncommon to find a difference of 20 or more points between Verbal IQ and Performance IQ (Silverman, 1993; Webb & Kleine, 1993; Winner, 2000). Most clinical psychologists are taught that such a discrepancy is serious cause for concern regarding possible serious brain dysfunction, including learning disabilities. For highly gifted children, such discrepancy is far less likely to be an indication of pathological brain dysfunction, though it certainly would suggest an unusual learning style and perhaps a relative learning disability.

Similarly, the difference between the highest and lowest scores on individual subscales within intelligence and achievement tests is often quite notable in gifted children. On the *Wechsler Intelligence Scale for Children - III*, it is not uncommon to find subscale differences greater than seven scale score points for gifted children, particularly those who are highly gifted. These score discrepancies are taken by most psychologists to indicate learning disabilities, and in a functional sense they do represent that. That is, the levels of ability do vary dramatically, though the range may be "only" from Very Superior to Average level of functioning. In this sense, gifted children may not "qualify" for a diagnosis of learning disability, and indeed some schools seem to have a policy of "only one label allowed per student," and since this student is gifted, he/she can not also be considered learning disabled. However, it is important for psychologists to understand the concept of "asynchronous development" (Silverman, 1993), and to appreciate that most gifted children show such an appreciable, and often significant, scatter of abilities.

Poor handwriting is often used as one indicator of learning

disabilities. However, many and perhaps most gifted children will show poor handwriting. Usually this simply represents that their thoughts go so much faster than their hands can move, and that they see little sense in making writing an art form when its primary purpose is to communicate (Webb & Kleine, 1993; Winner, 2000).

Psychologists must understand that, without intervention, self-esteem issues are almost a guarantee in gifted children with learning disabilities as well as those who simply have notable asynchronous development since they tend to evaluate themselves based more on what they cannot do rather than on what they are able to do. Sharing formal ability and achievement test results with gifted children about their particular abilities, combined with reassurance, can often help them develop a more appropriate sense of self-evaluation.

Sleep Disorders and Giftedness. Nightmare Disorder, Sleep Terror Disorder, and Sleepwalking Disorder appear to be more prevalent among gifted children, particularly boys. It is unclear whether this should be considered a mis-diagnosis or a dual diagnosis. Certainly, parents commonly report that their gifted children have dreams that are more vivid, intense, and more often in color, and that a substantial proportion of gifted boys are more prone to sleepwalking and bed wetting, apparently related to their dreams and to being more soundly (i.e., intensely) asleep. Such concordance would suggest that giftedness may need to be considered as a dual diagnosis in these cases, or at least a factor worthy of consideration since the child's intellect and sense of understanding often can be used to help the child cope with nightmares.

A little known observation concerning sleep in gifted individuals is that about twenty percent of gifted children seem to need significantly less sleep than other children, while another twenty percent appear to need significantly more sleep than other children. Parents report that these sleep patterns show themselves very early in the child's life, and long-term follow up suggests that the pattern continues into adulthood (Webb & Kleine, 1993; Winner, 2000). Some highly gifted adults appear to average comfortably as few as two or three hours sleep each night, and they have indicated to me that even in childhood they needed only four or five hours sleep.

Multiple Personality Disorders and Giftedness. Though there is little formal study of giftedness factors within MPD, there is anecdotal evidence that the two are related. The conclusion of professionals at the Menninger Foundation was that most MPD patients showed a history of childhood abuse, but also high intellectual abilities which allowed them to create and maintain their elaborate separate personalities (W. H. Smith personal communication, April 18, 1996).

Relational Problems and Giftedness. As one mother told me, "Having a gifted child in the family did not change our family's lifestyle; it simply destroyed it!" These children can be both exhilarating and exhausting. But because parents often lack information about characteristics of gifted children, the relationship between parent and child can suffer. The child's behaviors are seen as mischievous, impertinent, weird, or strong-willed, and the child often is criticized or punished for behaviors that really represent curiosity, intensity, sensitivity, or the lag of judgment behind intellect. Thus, intense power struggles, arguments, temper tantrums, sibling rivalry, withdrawal, underachievement, and open flaunting of family and societal traditions may occur within the family.

"Impaired communication" and "inadequate discipline" are specifically listed in the DSM-IV (1994) as areas of concern to be considered in a diagnosis of Parent-Child Relational Problems, and a diagnosis of Sibling Relational Problem is associated with significant impairment of functioning within the family or in one or more siblings. Not surprisingly, these are frequent concerns for parents of gifted children due to the intensity, impatience, asynchronous development, and lag of judgment behind intellect of gifted children.

Health care professionals could benefit from increased knowledge concerning the effects of a gifted child's behaviors within a family, and thus often avoid mistaken notions about the causes of the problems. The characteristics inherent within gifted children have implications for diagnosis and treatment which could include therapy for the whole family, not in the sense of "treatment," but to develop coping mechanisms for dealing with the intensity, sensitivity, and the situations which otherwise may cause them problems later (Jacobsen, 1999).

Conclusion

Many of our brightest and most creative minds are not only going unrecognized, but they also are often given diagnoses that indicate pathology. For decades, psychologists and other health care professionals have given great emphasis to the functioning of persons in the lower range of the intellectual spectrum. It is time that we trained health care professionals to give similar attention to our most gifted, talented, and creative children and adults. At the very least, it is imperative that these professionals gain sufficient understanding so that they no longer conclude that certain inherent characteristics of giftedness represent pathology.

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Mis-Diagnosis of Asperger's Disorder in Gifted Youth: An Addendum to "Mis-Diagnosis and Dual Diagnosis of Gifted Children" by James Webb, Ph.D.

As a licensed clinical psychologist specializing in giftedness, I read my colleague Jim Webb's paper with much interest. I, too, am concerned about the too frequent mis-diagnosis and over-diagnosis of gifted and talented youth.

In addition to the clinical syndromes outlined by Dr. Webb, Asperger's Disorder is another that is becoming commonly mis-diagnosed in gifted youth. Although there can be similarities between a gifted child and a child with Asperger's Disorder, there are very clear differences. Thorough evaluation is necessary to distinguish gifted children's sometimes unusual and sometimes unique social interactions from Asperger's Disorder. Thorough evaluation is also necessary to distinguish Attention-Deficit/Hyperactivity Disorder (ADHD) from behavioral problems and inattention that result from other causes such as anxiety, traumatic experiences (e.g., abuse), inappropriate curriculum, or even poor parenting.

A "qualitative impairment" in social interaction is one of the two main characteristics of Asperger's Disorder. Although the DSM-IV gives fairly explicit criteria for this type of social impairment, which does sometimes appear in gifted children, the highly gifted child's atypical social interactions or unusual modes of commenting and joking may often be misinterpreted as being characteristics of Asperger's Disorder. However, a closer look at the criteria shows differences between Asperger's Disorder and behaviors associated with gifted children. For example, a lack of social or emotional reciprocity is characteristic of Asperger's Disorder while gifted children most often show a tremendous concern for others. They may not always know how to express it appropriately, but the concern is there.

The second major DSM-IV diagnostic component of Asperger's Disorder includes restricted interests characterized by an "encompassing preoccupation with one or more...interest(s) that is abnormal either in intensity or focus." Professionals knowledgeable about Asperger's Disorder describe an intense fascination with a special interest that can come and go, but which will dominate the child's free time and conversation. Children with Asperger's Disorder may also show an uneven profile of abilities with remarkable long-term memory, exceptional concentration when engaged in their special interest, and an original method of problem-solving. In contrast, they may also show motor clumsiness, and a lack of motivation and attention for activities that would engage age-peers. Social withdrawal, teasing by peers, and difficulties relating to others in an age-appropriate manner are other markers for Asperger's Disorder.

All of the above characteristics are also commonly seen in gifted children and can easily be mistaken as Asperger's Disorder by someone not familiar with the asynchronous development and special needs of gifted youth. The unusual behaviors of many gifted children do strike many who are not familiar with gifted characteristics as a "qualitative impairment" in social interactions. Although the gifted child's interactions may technically show a "qualitative impairment," it is certainly of a different nature and likely has different causes (e.g., thoughts or worries by a gifted child about interacting).

Someone knowledgeable about giftedness could see these differences more readily than those who are not familiar. What I frequently see in practice is that when gifted youth are given the opportunity to interact with true "intellectual peers" in a particular area, their interactions are not only unimpaired, but also are often typical. In a child with Asperger's Disorder, one is not likely to see reciprocal interaction or discussion about a topic even if both children have an interest in the same topic. This is in marked contrast to gifted youngsters who will engage in extremely intense and also reciprocal conversations if both of them share the interest in, say, Pokemon or Harry Potter.

Differential diagnosing is an essential part of our work as health professionals, and it is easy to see how mis-diagnoses can be made. If professionals are unaware how characteristics of gifted children may appear similar to clinical syndromes, differentiation of diagnosis and treatment cannot occur, and many gifted children will continue to be mis-labeled and wrongly stigmatized. As a result, proper intervention cannot be implemented. For example, instruction for a bright but inattentive, disinterested student who is not being challenged in the classroom is very different from treatment or classroom approaches needed for an inattentive child with ADHD. Likewise, children with Asperger's Disorder often require much more intensive treatment and different classroom management, while a gifted child may benefit from interventions as simple as the opportunity to interact with appropriate peers.

I encourage your organization to help educate health professionals about the characteristics and social emotional needs of gifted youth.

Sincerely,
Edward R. Amend, Psy.D.
Director of Gifted and Talented Services
New South Psychological Resources, Winchester, Kentucky

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Tribute to George Orwell (1903-50): An Extraordinary Writer and Analyst of Totalitarianism

by Michael E. Walters Center for the Study of the Humanities in the Schools

George Orwell is a role model for gifted students on three levels. The first is how his life infused his writings and thoughts. The second level is the importance of his critique of the main issues of our times, economic and political freedoms. The third level is his ability to express insights and critiques in a writing style that ranks among the most readable of the twentieth century.

He had many experiences that would give him the ability to understand the major issues of the twentieth century. As a youth, he received scholarships to two outstanding prep schools in England -- St. Cyprian's and Eton. At these prep schools he experienced the psychic wounds of being victimized by his fellow students who came from wealthier and more socially esteemed backgrounds. He also experienced the power of propaganda, as the thrust of the educational goals at these institutions was to mold their students to become participants in the slaughter that was World War I. Instead of attending college, Orwell joined the Burmese police force where he encountered the pukka sahib code of British colonialism. He was repulsed by its dehumanization of both the rulers and subjects (**Burmese Days**, 1934). Upon returning to England, he lived on the edge of economic survival in both London and Paris (**Down and Out in Paris and London**, 1933). His publisher then sent him to investigate the conditions of coal miners in northern England (**The Road to Wigan Pier**, 1937). In 1937, he went to Spain originally as a journalist but then decided to join a militia group fighting against Franco's pro-fascist army. Here, he witnessed the suppression of independent socialist thinkers by political groups loyal to the Soviet Union (**Homage to Catalonia**, 1938). During World War II, he was part of the British Broadcasting Corporation's propaganda network. Among his colleagues was T.S. Eliot. After the war, he lived on an island off the coast of Scotland where he wrote **Animal Farm** (1945) and **1984** (1949). These two books are considered to be among the masterpieces of twentieth century literature.

His book, **Burmese Days** (1934), is an analysis of colonialism and racism. The book, **The Road to Wigan Pier** (1937), is about economic exploitation and the development of the trade union movement. From his experiences in Spain during the civil war there, he described the struggle between Fascism and Stalinism (**Homage to Catalonia**, 1938). **Animal Farm** (1945) and **1984** (1949) analyze totalitarian methodologies.

For gifted students, his literary style is very significant since he wrote in simple and direct sentences. One of his major beliefs was that totalitarianism thrives on destroying the meaning of words, e.g., tyrannical governments saying they are a People's Democracy. This leads to the manipulation of ideas and freedom. **Animal Farm**, a classic of the English language, is a humorous example of how the meaning of words can be changed to attain political dominance; it ranks with such satires as **Gulliver's Travels** (1726) by Jonathan Swift and **Alice's Adventures in Wonderland** (1865) by Lewis Carroll. George Orwell's life, thought processes and writing are crucial for the intellectual development and stimulation of gifted students in the twenty-first century. To gain insights into the controlling influence of the media in American society, they should read and study Orwell's books. ★★★★

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The Peruvian author and professor at Georgetown University, Mario Vargas Llosa, has written a wonderful article entitled, "Why Literature: The Premature Obituary of the Book," which appeared in The New Republic magazine. I highly recommend his provocative analysis of the importance of literature and books in modern Western society. Llosa states that reading literature helps to override specialization in different professions by providing individuals with similar reading experiences. He says, "Nothing teaches us better than literature to see, in ethnic and cultural differences, the richness of human patrimony, and to prize those differences as a manifestation of humanity's multi-faceted creativity. Reading good literature is an experience of pleasure, of course; but it is also an experience of learning what and how we are, in our human integrity and our human imperfection, with our actions, our dreams, and our ghosts, alone and in relationships that link us to others, in our public image and in the secret recesses of our consciousness." (The New Republic, May 14, 2001, p. 32).

Llosa also discusses another important function of literature: to transport individuals into an ideal world that can motivate them to improve their real world. In his view, the arguments presented by Bill Gates for eliminating books and replacing them with computer screens will not occur because the act of reading is an essential type of personal experience. Llosa is a writer of integrity who should be read by educators concerned with designing the best programs for the gifted. It is particularly gratifying to read this article because it supports my publishing goal (during the last twenty years) to emphasize humanities programs for gifted children.

We have a "full-house" of excellent articles in this issue of ***GEPQ***, as follows: (1) study of test scores that measure specific abilities -- rather than the g factor -- to identify children for gifted programs (research study by Barbara Louis and Michael Lewis, Robert Wood Johnson Medical School); (2) description of a training procedure for improving gifted students to reason in a flexible manner (Patti Hamilton, Seventh Dimension Thinking); and (3) a counseling and education program that increases gifted children's understanding of the cognitive and social aspects of their giftedness (Kathleen Dent and Susan Craig, Hamilton Montana Schools). In addition, the world-renowned cultural historian, Jacques Barzun, discusses some early experiences that influenced his intellectual development. In the concluding article, Michael Walters writes about certain cultural treasures and sites in Chicago that gifted children should investigate.

Maurice D. Fisher, Ph.D., Publisher

Effective Identification of Children for Gifted Education Programming

By Barbara Louis and Michael Lewis Institute for the Study of Child Development
Robert Wood Johnson Medical School New Brunswick, New Jersey

The 2-year-old boy climbed onto a chair in the food court and said, "Mommy, I like my hot dog with ketchup and mustard!" The 4-year-old suburban girl told her mother how to get to her rural friend's home, having been there only once. The 7-year-old leaned over to his mother during a Sunday church service and said, "How do we know they're not fakin' us?" Each of these children is obviously gifted. The 2-year-old's language is extremely advanced for his age. The 4-year-old has exceptional spatial skills and powers of observation. The 7-year-old has extremely advanced abstract reasoning abilities. Why would it be necessary to formally identify these children as gifted when their abilities are so obvious, and what is an effective means by which to do this?

Why is formal identification important?

As obvious as the giftedness of each of these children is to experts in the field, they might not be recognized as gifted either by their parents or their teachers; consequently, they are at risk for not receiving appropriate educational services. The outcome often is that gifted children languish in the classroom, and lose interest in the learning process, underachieve, and/or become behavior problems. This has far reaching implications for their current quality of life, as well as the remainder of their lives. One of the most common concerns of parents who bring their school aged children to the Gifted Child Clinic for evaluation is that their gifted children, who never have been challenged in school, have not formed any study habits. Because they never have had to work in elementary school to learn a new concept, they have not developed the strategies that they often find they need when they reach high school or college and finally face challenging course work.

Few people have equally strong skills in all areas. For gifted children and their parents, formal identification can serve to explain children's profiles of strengths and weaknesses. This can help parents and teachers understand why, for example, children are able to do certain things so well compared to others of the same age, while they are average, or even below average, in other areas.

Formal testing also serves as scientifically sound evidence of a child's cognitive ability. While parents actually are quite accurate in their judgements regarding their children's ability (Louis & Lewis, 1992), many people believe that "All parents think their children are gifted." This is true of teachers and school administrators, as well as lay persons. Combined with a valid measure of school achievement, a cognitive profile derived from an individually administered standardized intelligence test can validate parents' beliefs and aid in the creation of appropriate individualized education programs for their children. Hopefully, this will lead to instruction that challenges gifted children and encourages them to strive to reach their potential. An additional side benefit is that children will form effective study habits and experience the joy of accomplishment.

Finally, formal identification can serve to draw the attention of teachers and school administrators to the phenomenon of giftedness. Once this is accomplished and a true understanding of giftedness is reached, parents will no longer hear, "Don't worry. All children level off by 4th grade." It is critical for parents and educators to understand that giftedness must be nurtured, and that if children "level off," it is because they have lost either the ability or the will to exhibit their giftedness.

How can we effectively identify giftedness in children?

Any discussion of identification involves issues of definition. What do we mean by "gifted"? Gifted in what? There are as many types of giftedness as there are skills in the world. One can be a gifted cook, a gifted runner, a gifted leader, or a gifted physicist. Giftedness in each of these skills must be measured in a different way, and very different programs must be designed to foster giftedness in each of these areas.

When we discuss the education of gifted children, it is important to remain aware that what we measure must be relevant to children's educational success. When we design education based programs for gifted children, the definition of giftedness we use must be related to children's school performance. It also must be able to be operationalized in a valid and practical manner; that is, there must be reliable methods with which to identify the children who are in need of the special educational services.

While there are many types of giftedness, intellectual giftedness is related to school success, at least in one direction; that is, there is a high percentage of intellectually gifted children among the most successful students. However, this does not account for gifted underachievers, who score very well on tests of intelligence but are not successful students; or for populations of children who are not effectively identified using standardized intelligence tests but might be very good students within their peer group. Equipped with the knowledge that we never can identify every gifted child, how can we effectively and fairly identify as many as possible in order to help them succeed in school and lead happy, productive lives?

Theories of intelligence

Performance on tests of intelligence is related to academic competence, whether or not it is manifested in the classroom. The most common issue for gifted children is that their

competence levels are beyond the level of instruction that is being taught in the classroom. Therefore, intellectual giftedness appears to be the most reasonable avenue to pursue in identifying those children who need gifted educational services.

There are several theories of intelligence, each of which is related to different theories of giftedness. The two main theories of intelligence are g theory and specific skills theories. A g theory of intelligence views intelligence as a single entity which is inborn, stable, and generalizable. The implication is that a gifted person is one who possesses an unusual degree of ability in all areas that are believed to constitute the single entity of *intelligence*. Specific skills theories, on the other hand, view intelligence as a set of underlying abilities that are independently measurable and that demonstrate little or no generalizability from one skill area to another. In this case, a person can be gifted in any one or more of these areas.

Within a g theory of intelligence, in order to qualify for gifted services children are required to obtain an overall IQ score at or above a preset cut-off on a standardized intelligence measure such as the Stanford-Binet Intelligence Scale: Fourth Edition (SB-IV; Thorndike, Hagen, & Sattler, 1986) or the Wechsler Intelligence Scale for Children - Third Edition (WISC-III; Wechsler, 1991). In order to obtain an overall score at this level, these children have high ability in all or most areas measured by the tests. Many school systems use this method for admission to their programs, and it effectively results in a pool of gifted children. However, many children are eliminated who are in need of gifted services because their advanced abilities lie in more restricted areas of intelligence.

Within a specific skills approach, children who are gifted in individual skill areas can be identified. If the area or areas in which they are gifted are related to school performance, they also are at risk for inappropriate placement in regular classroom instruction. Children who are gifted in individual skill areas also can be identified through standardized measures such as the SB-IV or the WISC-III; however, a skills analysis must be done rather than only looking at the Full Scale IQ score. At the very least, ability in verbal skills and spatial skills must be taken into account separately.

What is the most effective approach to the identification of gifted children for the purpose of appropriate educational programming?

We have been evaluating preschool children for possible giftedness at the Gifted Child Clinic for nearly 20 years. Several years ago we expanded our services to include elementary school aged children. Through our work with these children, we have found that the most valid approach to both intelligence and intellectual giftedness is a specific skills approach.

Our preferred measure of intellectual functioning among school aged children is the WISC-III. This provides us with a measure of overall intellectual functioning (Full Scale IQ), as well as measures of functioning in the specific skill areas of verbal abilities (Verbal IQ) and spatial abilities (Performance IQ). Most parents bring their elementary school aged children to the Gifted Child Clinic because of school related concerns; therefore, we also administer the Peabody Individual Achievement Test - Revised (PIAT-R; Markwardt, 1989) as a measure of school achievement. The PIAT-R provides age and grade level comparisons and equivalents in General Information, Reading Recognition, Reading Comprehension, Total Reading (an overall Reading score), Mathematics, and Spelling. It also provides a Total Test score, which is an overall measure of academic achievement based upon all 5 subtests. Our current sample includes 130 children who were given both the WISC-III and the PIAT-R. Their ages range from 6 years 0 months to 13 years 1 month, with a mean age of 7 years 11 months.

Using a g theory approach to intelligence and giftedness, those children whose WISC-III Full Scale IQs are in the gifted range (IQ = 130 or above, 98th percentile) are considered gifted. This includes 73 of the 130 children tested, or 56%. The PIAT-R is scored on the same scale as the WISC-III, and children in the 98th percentile are considered to have scored in the gifted range. As an example, a child at the beginning of 3rd grade who scores in the 98th percentile on the Total Test score of the PIAT-R has an overall school achievement level of at least 5th grade 3rd month. Eighty-six of the 130 children tested (66%) scored in the gifted range on the overall measure of school achievement (PIAT-R Total Test). This included 90% of the gifted children (66 out of 73) and 35% (20 out of 57) of the children whose WISC-III Full Scale IQs were below the gifted range.

	WISC-III FSIQ Gifted	FSIQ Nongifted	
PIAT-R			
Gifted	66 51%	20 15%	86
Nongifted	7 5%	37 28%	44
Total	73	57	130

Table 1. Number and percent of children who are gifted and nongifted on the WISC-III Full Scale IQ (FSIQ) and PIAT-R.

Table 1 shows that the agreement between the WISC-III and the PIAT-R is high, with 51% of the total sample testing gifted on both, 28% nongifted on both, and 20% gifted on one but not the other. Using a g formulation, the 20 children who were gifted on the PIAT-R but not on the WISC-III would not be referred for gifted services.

Using a specific skills approach to giftedness, there are any number of skills we can look at; however, in the interest of

efficiency, we at least look at verbal and spatial skills separately. Using the three IQ scores obtained from the WISC-III, there are four possible IQ score profiles: 1) a Verbal IQ in the gifted range but not a gifted Full Scale, 2) a Performance IQ in the gifted range but not a gifted Full Scale IQ, 3) a Full Scale IQ in the gifted range (which usually, but not always, entails either a gifted Verbal IQ or Performance IQ, or both), and 4) neither a Verbal IQ, Performance IQ, nor Full Scale IQ in the gifted range. When we include with the children whose Full Scale IQ was 130 or above, those children whose Verbal IQ or Performance IQ alone was 130 or above, we identify a total of 92 gifted children, or 71% of our total sample. Seventy-nine of these 92 children, or 86%, scored in the gifted range on the PIAT-R. This compares with the 66 children with only a Full Scale IQ in the gifted range who also were gifted on the PIAT-R.

	WISC-III			
PIAT-R	VIQ Gifted	PIQ Gifted	Nongifted	
Gifted	12 21%	1 2%	7 12%	20
Nongifted	5 9%	1 2%	31 54%	37
Total	17	2	38	57

Table 2. Number and percent of children who are nongifted on the WISC-III FSIQ, and who are gifted on the WISC-III Verbal IQ (VIQ), WISC-III Performance IQ (PIQ), or nongifted on the WISC-III, and gifted or nongifted on the PIAT-R.

Table 2 presents the skills profiles of the 57 children who were not gifted on the WISC-III FSIQ. This includes the 20 children who were gifted on the PIAT-R but not on the FSIQ, 12 of whom are gifted on the VIQ and 1 who is gifted on the PIQ. As can be seen from this table, if the criterion for giftedness is a score in the gifted range on any one of the WISC-III IQ scales, then there are 13 additional children who are gifted on the WISC-III and on the PIAT-R. When these children are added to the 66 children who were gifted on the FSIQ and the PIAT-R, then 61% of the sample (66+13=79) is gifted on both measures.

This still leaves 7 children who are gifted on the PIAT-R but not on the WISC-III. This is a well above average group of children, with a mean Full Scale IQ of 120, Verbal IQ of 123, and Performance IQ of 112. Each child scored at or above 120 on at least one of the IQ scales. If the PIAT-R is used as an outcome measure for academic giftedness, then it certainly also should be used as a criterion measure for identification.

Thus, we could construct a specific skills approach that used as the criterion for giftedness a score in the gifted range on either the WISC-III Full Scale IQ, WISC-III Verbal IQ, WISC-III Performance IQ, or PIAT-R Total Test. This would include 13 children who scored in the gifted range on at least one of the WISC-III IQ scales but not on the PIAT-R and 7 who scored in the gifted range on the PIAT-R and not on one of the IQ scores. This would result in the referral of 99 children, or 76% of our sample, for gifted educational programming.

These data show that an evaluation for gifted programming that takes a skill versus g approach allows us to look at specific gifted abilities and thus increase the effectiveness of our identification procedure. Because g theory severely restricts the definition of giftedness, it severely restricts the number of children identified and referred for gifted educational services. When specific skills are taken into account, we see that many children who do not score in the gifted range on the Full Scale IQ in fact are gifted in skill areas that relate to academic ability. Thus, a skills approach results in an increased likelihood of being able to provide more children with needed educational services. It also increases the diversity of the participants in our gifted programs.

One final note of interest bears discussion as it relates to the identification process. The Gifted Child Clinic operates on a referral basis, and the majority of the time it is parents who refer their children. Using a specific skills approach, 71% of our total sample scored in the gifted range (IQ = 130 or above) on either the Full Scale IQ, Verbal IQ, or Performance IQ. Eighty-nine percent of these gifted children obtained Verbal IQ scores in the gifted range, indicating gifted verbal abilities. This is compared with only 9% of the gifted children who obtained Performance IQ scores in the gifted range but whose Verbal IQ scores were below the gifted range, indicating gifted spatial abilities in the absence of gifted verbal abilities. (Note that 2 children obtained Full Scale IQ scores in the gifted range, with both Verbal IQ and Performance IQ scores just below the gifted range.) Also of interest is the level of intellectual functioning of the children who did not test in the gifted range. Of the 29% who did not test in the gifted range on the Verbal IQ, Performance IQ, or Full Scale IQ, the mean Verbal IQ was 117, the mean Performance IQ was 109, and the mean Full Scale IQ was 115. This indicates an above average level of functioning in the area of verbal skills, even for the nongifted children.

These results are consistent with a study that we conducted several years ago in which we analyzed the specific skills of preschool children that led their parents to believe they were gifted (Louis & Lewis, 1992). Our findings in the current study indicate that parents are very good judges of giftedness in their children. In the 1992 study, 61% of the preschool children brought to the Gifted Child Clinic obtained overall IQ scores in the gifted range. Of particular interest from a specific skill perspective, however, was parents' responses to a question regarding their beliefs about giftedness in specific skill areas. In this preschool sample, verbal ability was mentioned more often by parents as being indicative of giftedness in their children than

any other skill, with 61% of parents reporting advanced expressive language skills.

In the current study, verbal abilities continue to be the basis for giftedness as children enter and participate in elementary school. There are two possible explanations for this phenomenon. The first is that parents continue to be consciously aware of their children's advanced verbal abilities. They see advancement in this area as an indication of giftedness that then manifests itself in advanced school achievement levels and results in inappropriate instructional placement. The second possibility is that parents are aware of their children's inappropriate instructional placement in the classroom and perceive this as indicative of giftedness. The relation between gifted school achievement and gifted verbal abilities then is manifested in the results of the intelligence measures. In either case, it appears that verbal abilities are a very important aspect of giftedness as it relates to educational competency.

Conclusions

These data illustrate several important aspects that need to be considered when identifying children for gifted education programs. First, a g theory approach to intellectual giftedness is not a sufficient basis for identifying gifted children with very high levels of school achievement. Verbal skills are highly related to children's academic competence and, in fact, may be the driving force behind the relation between intellectual giftedness and extremely advanced school achievement. When Full Scale IQ, Verbal IQ, and Performance IQ were taken into account in identifying intellectual giftedness, 86% of our gifted children also were gifted on the school achievement measure. Reciprocally, using this specific skills approach to giftedness, 92% of the children who showed gifted school achievement were identified with the WISC-III. Expanding the criteria to include the PIAT-R as a measure of academic giftedness resulted in 76% of the total sample being identified as gifted. Second, intellectual giftedness is highly related to academic competence, whether or not that competence is apparent in classroom performance. This comes as no surprise, given Alfred Binet's original development and use of IQ as an instrument by which to identify children who were candidates for special education. Third, the traditional definition of intellectual giftedness as performance in the 98th percentile on an overall measure of intelligence is too limited a construct to use in the identification of nontraditional children whose academic competence places them well beyond the level of instruction that is being offered in the classroom. A skills approach is more inclusive, and it will lead to greater diversity in gifted programs. Finally, most school districts do not have the funding necessary to individually evaluate every child for potential giftedness. We know that classroom performance is not a reliable screening for gifted children; however, parent nomination, while not foolproof, is a factor to be considered seriously in the screening process.

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How 3D Thinking Can Enrich Gifted Education

By Patti J. Hamilton, Ph.D. Seventh Dimension Thinking Sarasota, Florida

What is 3D (holographic) thinking?

Are you able to see a difference between a photograph and a holograph? Between a plane circle and a sphere? It is precisely this difference — the addition of a dimension in the complexity of information — that can help us to appreciate the higher-order processes of the gifted and talented. 3D (holographic) imaging sets the stage, by analogy, for the development of higher-order thinking and learning.

"Some of the most crucial steps in mental growth are based not simply on acquiring new skills, but on acquiring new administrative ways to use what one already knows (Minsky, 1986)." One new administrative way to use what we already know is to add dimension to our thinking by incorporating multiple perspectives.

Metaphorically speaking, the difference between a three-dimensional holographic image and a two-dimensional photographic image is the seeing of multiple angles at once. A

photographic film records only one angle of light reflection; a hologram is made by using mirrors to record several angles of light cast on an object, and thus to record more than one perspective. The difference in effect is similar to the difference between mono, stereo, and surround sound — and it is easily detectable by average human senses. We perceive this effect of heightened complexity as delivering more "realistic" information.

Various principles for organizing information, also known as *gestalts*, have been under investigation since the earliest days of psychological research. In the past, these perceptual-organizing tendencies were assumed to be hardwired into our brain's functioning. Today's researchers, however, are demonstrating the plastic nature of the brain and the interactive nature of perception, cognition, and learning. As higher orders of thinking are learned, even higher orders become potential. High-level organizing powers and complex perceptual organizations are perhaps common already to the thinking styles of the gifted.

Why do educators for the gifted *especially* need 3D thinking?

To catalyze the development of our best minds, we must be well versed in and comfortable using the same higher-order tricks of mental management used by geniuses:

"It's not enough to learn a lot; one also has to *manage* what one learns. [Creative geniuses] have, beneath the surface of their mastery, some special knacks of 'higher-order' expertise, which help them organize and apply the things they learn. It is those hidden tricks of mental management that produce the systems that create works of genius. . . . Some better ways to learn may lead to better ways to *learn to learn*. Then, later, we'll observe an awesome, qualitative change, with no apparent cause — and give it some empty name like talent, aptitude, or gift." (Minsky, 1986).

One aspect of giftedness is this higher-order management of knowledge. In a description of a gifted little girl named Anna, we can see one example of higher-order mental management that uses the "hidden trick" of analogy:

"She had this capacity for taking a statement of fact in one subject, teasing it until she discovered its pattern, then looking around for a similar pattern in another subject. Anna had a high regard for facts, yet the importance of a fact did not lie in its uniqueness but in its ability to do service in diverse subjects." (Fynn, 1976).

Another hidden trick of genius is that of dimensionality (as in *a problem cannot be solved on the same level it was created*).

One way to use 3D thinking in curriculum development and class activities

One way to use 3D thinking in gifted education is through a teaching model that I call *Simultaneous Multiple Perspectives*. Its core structure, which can be used for presenting any complex subject, is as follows:

Simultaneous Multiple Perspectives

Purpose:

The achievement of a detailed understanding of a person, a situation, a question, or an issue — as multidimensional and multifaceted rather than flatly "either/or."

The Simultaneous Multiple Perspectives procedure is a learned gestalt that delays conclusions and judgments until more information from more perspectives is taken into account. The knower's task is to include multiple mirrors (perspectives) and to perceive each perspective at "face value."

Objectives/Aims:

- To see more aspects of things at once.
- To expand and enrich one's point of view.
- To deepen understanding through a higher order of complexity.
- To develop a higher-level thinking skill.

Materials:

Display of actual holograms, if possible: postcards, key rings, etc.
Illustrations comparing how holograms and photographs are made and reconstructed.
Figure: Simultaneous Multiple Perspectives illustration (described in the following procedure).

Procedure:

1. Draw 3 symbols (e.g., a stick figure for a person, an exclamation mark for an opinion, a question mark for an unknown). Encompass each symbol by a horseshoe-shaped semicircle made up of dashed lines. The symbol in the center represents the subject for further study or discussion.
2. In regard to the dashed lines, name them with several of the angles, perspectives, or mirrors of reflection that one might use to view this "thing in the center." For example, in explaining a human's behavior, various perspectives might include the influences of instincts, conditioned learning, imitation, culture, and heredity. Or use the dozens of social theories on what causes racism, war, political affiliation, or religious differences. Or the various viewpoints surrounding the issue of abortion. Or the interdisciplinary approach to research (e.g., as in educational science, which might draw on contributions across fields of brain science, communications, learning psychology, economics, technology, and so on).
3. Assume that all angles have useful information to contribute

toward the unique perspective of each observer.
4. Without needing to "move" to another perspective, the observer must still acknowledge other angles or viewpoints.
5. Experiment with other uses of the framework for deepening understanding and broadening perspective:

- Use as a tool for conflict resolution.
- Interpret an *attitude* as a commitment to standing in one place, to taking one perspective.
- "Stage" a 3D representation: the person, situation, or subject of discussion is in the center. "Possibilities" stand in an arch and offer their characteristic viewpoints. The "observer" can converse with any of the perspectives.

Some psychological responses to instruction in 3D (holographic) thinking

Cognitive development beyond Piaget's stages and beyond Bloom's taxonomy of higher-order thinking skills is often described in terms of Perry's Scheme (Perry, 1970). Higher levels of thought proceed initially from the:

- *dualistic*, or "one view is ultimately right," to the
- *multiplistic*, "all viewpoints are equally valid but separate and everyone must choose one for themselves," and eventually, to the
- *relativistic*, "what is true depends on where one stands."

The learned gestalt of Simultaneous Multiple Perspectives induces experiences of the highest order of thinking in Perry's Scheme — namely, an immediate and direct access to relativity: of thought, of meaning, and of perspective.

Analysis of two students' responses illustrates the developmental power of this procedure:
#1) "Each will see a different aspect depending on their angle of view. . . Even if two people do look at something from the same place, what their mood is at the time would have an effect on what they are looking for and what they feel toward what they see. Level of interest in what someone is looking at also is the major fact determining what they see. A person that is not interested might not see much because they didn't look close. The person that was interested analyzed the object and considered all the features of what they see."

This student was aware not only of the relativity of perspective ("different aspects seen depend on different angles of view"), but also of variations in resolution *within* a perspective. He has hypothesized that mood, expectations, and level of interest will affect what one attends to and in how much detail or degree of resolution.

#2) "The multi-faceted dimension is what makes [this] fascinating and the physical method of observing cements the image to the mind. . . . A hologram is a conflict to resolve: your mind insists it is three dimensional yet your physical sense of touch tells you it is not. This conflict is a part of the power of imprinting the image to the mind. (With simultaneous multiple perspectives). I am also enabled to view others viewing the object. . . . I am in a position to see why they see the certain perspective even if I can't see it from where I stand. . . . 'I now see why you see what you see because I see you see it.' . . . I saw a pattern of teaching by how the viewer participated with the medium, and this was a pattern I had not seen before I began the reflection. The discovery was exciting. . . . it seemed like a fun game. . . . like putting a puzzle together using thoughts for the pieces."

This student was aware of metaperspective ("I am also enabled to view others viewing the object"). She was also aware of the relativity of perspective ("I am in a position to see why they see the certain perspective even if I can't see it from where I stand"). Patterns she had not seen before the reflection emerged during the reflection, and she became aware of the mental shift involved between two-dimensional and three-dimensional perception ("your mind insists it is three dimensional yet your physical sense of touch tells you it is not").

Both of these students were able to discuss perspective in ways that demonstrate development beyond duality in Perry's scheme, at least temporarily. Both seemed aware of the relative nature of one's viewpoint and discussed differences in viewpoint without reference to truth value or superiority of position. Both seemed to perceive multi-dimensionality and to be able to discuss that perception.

One student referred indirectly to the idea of differences in resolution: this procedure seemed to give him insight into how differences within the same vantage point might come into being. The other student became aware that perspective is relative to one's vantage point. In addition, she experienced the "aha" of personal production of knowledge and discovered a pattern she had not seen before. Although this does not suggest that the students' overall styles of thinking had changed, it does appear useful for accessing at will the higher levels of thinking involved in advanced learning, including relativity of perspective, 3D thinking, and higher-order mental management. As a perceptual template, it is practical and easily applied due to its nature of being visually concrete and repeatable.

Summary

In an age of information technology, education and business leaders are realizing the value of higher-level thinking such as 3D thinking, systems thinking, analogical thinking, and skill with complexity. Average thinkers are 2D thinkers. 3D thinkers are able to process more quickly, accurately, and in depth. In essence, the human mind is capable of storing more complex information through the use of 3D thinking.

We can enrich gifted education by learning and teaching directly the higher-order tricks of mental management. Use 3D thinking:

- to develop gifted curriculum
- to organize classroom activities
- to present complex issues

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The full model curriculum for higher-order thinking includes creative thinking, visual thinking, and complex-systems thinking. It consists of 4 levels of mental training:

- increasing awareness
- destablizing assumptions and mental frameworks
- trying out new frameworks
- detecting emergent frameworks

(Simultaneous Multiple Perspectives is an example of the 3rd level.) ☆☆☆☆

More than Just Intellect: *Qualities of Personal Power* to Gifted Students

By Kathleen Dent and Susan Craig Hamilton, Montana

Take Five: 5 Traits of Competent Kids is a program that reflects our own personal philosophy. It encompasses the hope and faith we have for our gifted children. Using this program, students will come to view themselves as more than just intellect. They will embrace their own complexity and experience the joy associated with completing a challenging task in a creative way. Through the attributes of courage and caring, they will envision themselves as participants in positive solutions to everyday problems. This program starts young students on a life long journey of self renewal and awareness and presents an optimistic view of the future.

Take Five was conceived in Hamilton, Montana where approximately 130 identified students are part of a district-wide gifted program. Potential students for the program are referred by parents and teachers for evaluation. The multifaceted identification process includes achievement level testing; cognitive testing; teacher ratings and reports; and parent observations and reports. The identified gifted students participate in a variety of program options including school-wide enrichment activities and pull-out classes. The gifted students spend most of their school day in a regular classroom.

In order to address social and emotional needs of identified gifted students, Susan Craig, the school counselor, and I teamed up to facilitate a small group for fifth and sixth grade gifted students. I am the gifted coordinator for the students in grades kindergarten through eighth grade.

The students responded well to our initial attempts at listening to their concerns and offering some techniques to counter stresses that go along with their abilities. However, we weren't satisfied and felt our methods could be improved. In studying programs, there didn't seem to be anything available to help us set up a group. Hoping to find solutions, we attended the spring Montana AGATE 2000 Conference (Association for Gifted and Talented Education). Here, we heard a presentation by James Webb, founder of SENG (Supporting Emotional Needs of Gifted).

In Webb's presentation, "Cultivating Courage, Creativity, and Caring" (2000), he reviewed the triad model developed by Joseph Renzulli (1981) that has been helpful in identifying components of giftedness. These components represent clusters of traits which are grouped into three categories - above average ability, creativity, and task commitment. According to Renzulli's Three Ring Conception of Giftedness, a person would be considered gifted when all three clusters of traits are present at the same time to a large degree. It is useful to briefly describe the qualities represented by Renzulli's model even though the current literature has covered this area thoroughly.

Above Average Ability

In the school environment, it has been common for teachers to identify gifted students as those who scored on the 95th+ percentile on standardized tests, have straight A's, or have an I.Q. of 130 or higher. Researchers are finding that high accomplishment is not necessarily the function of measured intelligence. These test scores can only be used to screen out the students who score in the lower range. Test scores may serve as an indicator of potential and above average ability but do not guarantee accomplishment as a student or as an adult.

Creativity

Creativity suggests divergent and unique thinking, and the ability to develop new ideas and approaches to problems. Webb (2000) views creativity as more of a process of thinking or approaching tasks rather than a product, and believes that by focusing on the process we can help cultivate creativity in individuals.

Task Commitment

This third cluster of traits is found in creative and productive people who demonstrate a focused manner of accomplishing tasks. They have the ability to chart a course and to follow it to goal completion. It describes a certain energy directed toward a project or goal. Renzulli (1981) describes these traits as the "Yeast that activates the manifestation of creative productivity." Researchers often describe this as hard work, dedicated practice and the intense energy gifted people can display in order to produce a desired result.

Webb proposed that there are two additional clusters of traits that are important when we consider the social and emotional well-being and development of gifted students. He believes that ***courage*** and ***caring*** can be cultivated in our gifted students. He challenges us as educators to promote them in gifted children. (Webb, 2000).

It is important to describe in more detail the additional traits offered by Webb. We do not suggest these circles serve as an identification model but rather as a framework through which any gifted person could gain social and emotional insight as well as learn skills needed to reach their potential.

Courage

Courage is needed by highly capable and creative people in order to present their ideas and abilities to society when they know their thoughts, approaches, works of art or performances may be different. Strength is required to stand behind an idea that may go against popular thought and risks associated with following a different direction. It is difficult to make decisions that waver from accepted procedure. Renzulli (1999) states that one of the purposes of gifted education "is to increase society's reservoir of persons who will help to solve the problems of contemporary civilization by becoming producers of knowledge and art rather than mere consumers of existing form." Students must learn at an early age to stretch outside of their normal comfort area and risk being different from peers. Students must not deny their most precious gift to society -- the gift of seeing the world through their own eyes and exploring their own thoughts.

Caring

It is evident that productive and creative works of scientists, artists, philosophers, authors, scholars, engineers and leaders in every area of society provide benefits to all of society. Students can learn social skills and the ability to observe their own behavior and the positive or negative effect it may have on others. These skills start at home, in the classroom, and on the playground. As students mature, they begin to understand the cause and effect of human behavior and how it can serve society's needs in a positive way. There are people who display all the four traits -- above average ability, creativity, task commitment and courage. However, caring is missing. Webb uses the example of the computer "hackers" who are destroying business on the INTERNET and causing chaos worldwide. These people are definitely bright, creative, task committed and courageous, but the element of caring is missing in a destructive way. When a person activates all five of these clusters of traits they find themselves in a powerful position to create and offer something unique to society.(Webb, 2000).

Developing the Group Design

After hearing Webb's ideas, we discussed the possibility of using them as a framework for developing a comprehensive, research-based group design. This was the "Ah-Hah" moment for both of us. Our overall goal was to communicate to gifted students the qualities inherit in successful, productive adults.

Using the five traits as a foundation, we have developed a nine session group design to introduce them. We refer to these traits as the ***Qualities of Personal Power***. Through this program, students learn what it means to have above average ability, to be committed to a task, to be creative, to use courage and to apply these qualities in a responsible and caring manner. Self-evaluation and goal setting activities enable them to begin their journey of self understanding. They become aware of some of their strengths and weaknesses and gain direction in skill building and self analysis.

The following is our basic group design. The simplicity of the design allows it to be adjusted to the developmental age of the students. Activities for each group theme need to be appropriate for the interests of those students participating. We have successfully used this design with identified 5th and 6th grade students but it could be adapted for all ages.

TAKE FIVE: Traits of Competent Kids

Session One: Introduction; Session Two: Above Average Ability; Session Three: Creativity; Session Four: Task Commitment; Session Five: Courage; Session Six: Caring; Session Seven: Guest Speaker; Session Eight: Self-Evaluation and Goal Setting; and Session Nine: Parent Meeting .

Implementing the Group Design

The introductory session focuses on the student's self understanding Students are given time to discuss their abilities and an opportunity to represent their strengths in visual-artistic form. Some of the students have represented their talents in pictures of soccer games, math problems, and abstract designs using colors with a key describing what each represents.

For the next five weeks, in a forty-five minute group format, students are introduced to one of the ***Qualities of Personal Power***. Activities are designed to be as interactive as possible and the students are given time at the beginning and the end to discuss the topics in a round table fashion. For example, in the above average ability lesson, students are asked to discuss the joys and challenges associated with having above average ability in a regular classroom. One student shared how the teacher always asked him to help other students even when it meant interrupting his own work. Several other students agreed that this was also true in their classroom. The universality of the issues discussed brings the students closer together and serves to increase the trust level within the group. The students work in pairs to develop positive strategies for dealing with common difficulties. They practice the strategies during the following week, and the first few minutes in the next group meeting are spent sharing experiences related to the previous lesson.

These lessons allow students to realize that adults are truly listening to their concerns and are working on their behalf. They have appreciated our involvement in helping them find solutions. Through our discussions with the classroom teachers about the group, we have been able to approach the teachers in a general way with some suggestions to compact or differentiate their instruction.

Gifted students also learn that they can be their own advocates for their needs in the classroom. An example of self advocacy came when, after the lesson on courage, one very quiet student asked his teacher to accompany him to the library. He pointed out several books he would like to read about China instead of the novel the class was reading that was below his level. The teacher was open and grateful for the student's input.

Guest Speaker

One of the most powerful and important components of the program provides an opportunity for students to connect with adults who are productive, positive members of society. After discussing and practicing the *Qualities of Personal Power* Susan and I arrange to have the students visit with a member of our community who has exhibited those traits in their life. Gifted students learn from studying the lives of gifted people, both contemporary and historical, who show the *Qualities of Personal Power* in their lives. Every community has people who exhibit these qualities. Having the guest visit the students in person gives them an opportunity to ask questions and experience the uniqueness of the individual guest speaker.

Before the students meet with the speaker, it is important to spend time with the guest acquainting him/her with the concepts taught in the group. We explain to the speaker the goals of the program and the definition of the five traits. We ask them to relate experiences in their lives that exemplify the *Qualities of Personal Power* and how they helped to shape their lives.

We point out to the students that these successful people are working all through our community in many different areas -- medical, legal, education, performing arts and other arenas. Most are not world famous, but they are making an important contribution to our community in a caring way. Two of the guests we have invited were an internationally known researcher that discovered the bacterium that causes Lyme disease and a world renowned artist/historian.

The scientist shared his experience in Swiss schools, when as a 10 year old, he was told not to plan on being on the university track as his test grades were too low. He found his personal courage and persisted and earned a Ph.D. Also, he shared how courage had been the most important quality for him to achieve success because, with each career decision he made, he had to choose the way that was less certain. The students were also amazed at his task commitment and creativity.

The artist/historian is self taught and explained how he wished he had stayed in school so he could have learned his skills more easily. The students visited him in his home where he shared his collection of artifacts and explained the painstaking way he prepared to reenact Custer's Last Stand so that he could paint the scenes with as much authenticity as possible. His message was that because these students have above average abilities, they have a responsibility to contribute in a positive way. His examples of task commitment were inspiring. One student wrote in her evaluation of his presentation, "I will take these lessons with me the rest of my life."

Goal Setting

The week following the guest speaker is a time for self reflection and goal setting. After studying the *Qualities of Personal Power* and seeing them exemplified in a community member, students are asked to assess where they are in each of the five areas at the present time. After a brief discussion, they are then asked to write one realistic goal in each area they can work on during the school year. These goals are copied and kept in their gifted

education portfolio. The students' copies are added to their individual folder to be shared at the parent meeting.

Parent Meeting

Parents are invited to the final session. Our first parent meeting for our new program was the last week of school. We sat in an empty room with cookies and punch wondering if anyone would show up. Parents and students trickled in slowly. Just as we began the meeting, one of the boys, in a muddy baseball uniform, came in with his parents in tow. The students began to explain the program and we did a few of the activities together. They sat with their parents munching cookies and talking about their goals. The baseball player's parents came up to us and said, "He was in the third inning of his game and he came over and said that we had to come to this meeting because he wanted to share his goals with us. We had no idea this was so important to him. We had to leave in the middle of the game. This is great!"

Looking Ahead

It was refreshing to walk down the halls of our school this fall and have the students that participated in the group last spring walk up and ask, "Hey, when are we going to start that group again? That was fun!" We've had students pleading with us to organize another group. Parent responses have also been encouraging. They hope we will continue the program for another year.

Students who have completed the first level of the program are now ready to delve deeper into the practical application of the five circles to their lives. We are currently extending the curriculum to meet that need.

We have presented our ideas for group implementation at a Gifted Institute and a conference for counselors. We have a list of professionals throughout Montana that are awaiting the publication of this program and are enthusiastic about implementing it this spring.

Using this basic group design to present important qualities that promote accomplishment, we have written a complete lesson plan and design to implement these ideas with gifted students in grades 5-8. This program is described in depth in our book ***Take Five: 5 Traits of Competent Kids*** (2001) which provides everything a group leader needs to facilitate the program. The groups can be led by a counselor or a teacher. We find the combination of the gifted coordinator and the counselor as co-facilitators to be very effective but we realize this is not realistic for many school districts. The design is simple and easily followed and there is no additional training necessary to implement the program. The introduction includes a description of Joseph Renzulli's model and the additional ideas of James Webb. ***Take Five*** is a publication of Dandy Lion Publications.

Through this program, gifted students learn skills to be more efficient at task completion. They begin to enjoy creative moments and feel proud of their abilities. They apply their skills in a courageous and caring manner. They enjoy the fellowship of other students like themselves and relax in the company of those who appreciate their unique view of the world. It is our hope that our children will gain through this experience the confidence and knowledge to positively impact their future.

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"Logical activity is not the whole of intelligence. One can be intelligent without being particularly logical. The main functions of intelligence, that of inventing solutions, and that of verifying them, do not necessarily involve one another; the first partakes of imagination, the second alone is properly logical. Demonstration, search for truth, is therefore the true function of logic."

Jean Piaget (**Judgment and Reasoning in the Child**, 1924)

What factors in your background have contributed to your giftedness as a major cultural historian? How?

I recently asked Professor Jacques Barzun this question to gain some understanding concerning the development of a great writer and educator. He has been a Professor of History, Dean of Faculties and Provost at Columbia University. His most recent book, **From Dawn To Decadence** (2000, HarperCollins), was published at the age of 92. He has published twelve previous books on topics concerned with art, music, literature and the intellectual condition of American and Western society. M. Fisher

"I think the answer to your question is: the lucky accident of being born to a family whose long tradition was intellectual and artistic, coupled with early education in a French lycée. As a small child I believed that making books or works of art was for adults the equivalent of play for children -- the only thing worth doing -- and when I was about eight, in the fourth grade, I wrote without any prompting a History of France some ten pages long; it went no farther than the point covered in class. I was playing adult well ahead of time. What the lycée provided in those years was a thorough grounding in reading, writing, history, and elementary math -- the basics that have been lost in all the schools of the Western world. My schooling before the great decline was another piece of good fortune, and I may say that I owe whatever I have done that has proved useful to a pair of circumstances not of my own making."

An Exhilarating Visit to Chicago **by Michael E. Walters Center for the Study of the Humanities in the Schools**

Chicago is a splendid city to visit during the spring -- the weather is moderate and the air quality is fresh. This is the perfect time of the year to experience the varying cultural features of a city full of multicultural treats for everyone's esthetic palate. A weekend for gifted students in this city would be both exhilarating and stimulating. The first cultural treat is the architecture and how it is used for interaction with and enjoyment of the city. Modern American architecture was started here in the early part of the twentieth century by architects such as Louis Sullivan, the father of the modern industrial skyscraper, and his student, Frank Lloyd Wright, the genius of contemporary American architecture. The lakefront on Lake Michigan is used in both an esthetic and functional manner that is organic to the city itself. The area that runs along the lakefront, Lake Shore Drive, is one of the most pleasant public areas in the United States where a gifted student can easily grasp the interaction of architecture and nature, especially in the spring.

Wrigley Field, located in the heart of a residential neighborhood (Lincoln Park), is the essential professional baseball experience. This area is also the sight of one of the major zoological parks in the world, the Lincoln Park Zoo. Wrigley Field is not designed in the "corporate style" as are most contemporary baseball stadiums. At Wrigley there is a union between the players and their fans who are a part of the game in a unique way. There are residential buildings located right next to the ball park with bleachers on the rooftops. On the day I attended the game, I had an opportunity to witness one of the most gifted athletes at work -- the home run hitter, Sammy Sosa.

Chicago is a blend of musical experiences. Scattered throughout the city are bars, clubs and performance halls where one can encounter a variety of music – jazz, blues, folk and popular. This was the city that gave the world Benny Goodman and Gene Krupa, and hosted the careers of such Black musicians as King Oliver and Louis Armstrong. In addition, Chicago has one of the world's greatest symphony orchestras, the Chicago Symphony, and a major opera company, the Lyric Opera.

The Art Institute of Chicago is a major center for art in the United States, displaying one of the world's major collections of French impressionistic art. Also among its collections are American and Buddhist art, medieval armor and weaponry, and the stained glass windows completed by Marc Chagall when he was ninety years old. There is also a film school associated with the Art Institute named after the film critic, Gene Siskel, who died tragically at an early age.

Chicago's neighborhoods have produced a wealth of gifted writers. Carl Sandburg, Upton Sinclair, Theodore Dreiser, James T. Farrell, Meyer Levin, Nelson Algren, Saul Bellow and Studs Terkel have used the social settings of this city with such powerful effect. The African American community has produced such literary stars as Richard Wright, Willard Motley, and the recently departed poetess, Gwendolyn Brooks.

When my wife and I left Chicago, we had experienced a wide range of gifted encounters. However, the most enriching experience was to visit one of the luminaries of gifted education in America, Joan Smutny of National Louis University, who lives in a beautiful Victorian residence in Wilmette. She is dedicated to both her college students and her nationally renowned summer camp for gifted students. Our visit with Ms. Smutny was the icing on the cake of our tour of Chicago. ✱✱✱✱✱

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Best wishes for a successful 2001-2002 school year! During the last several years, I have observed the following increasing interests among parents, teachers and administrators: (1) ***Early childhood programs for young gifted children***. Although most school districts do not usually identify children for gifted programs until the second or third grade, the need for more stimulating primary programs in grades K-2 is obvious when talking with parents and early childhood educators. In the Spring 2001 issue of ***GEPQ***, Susan Grammer presented an excellent article on some of the problems that parents face in obtaining a stimulating public school program for their young gifted children. We welcome more articles on this topic.

(2) ***Challenging mathematics and science books and materials***. Unfortunately, this has been the weakest area of our publishing activities, primarily because we have received few inquiries from qualified authors.. We currently publish three books that address some of the issues related to teaching mathematics and science to gifted children: **Bright Child** (1999) by Lynn Fox and Andrea Prejean, **Earth, Wind and Sky** (1994) by William Glenn, and **Dare to Differentiate** (2000) by Brendan Miller and Colleen Willard-Holt.

(3) ***Guides for homeschooling the gifted***. Although most parents of the gifted want their children to receive an appropriate public school education, increasing numbers prefer to engage in homeschooling. There are few teaching materials or guides that can help these parents to effectively educate their gifted children at home. Gifted Education Press has been fortunate to publish **Gifted Education Comes Home** (2000) by Lisa Rivero, an outstanding writer and homeschooler.

Multiple Intelligences theory as applied to identifying and educating the gifted has produced much controversy among teachers, administrators and parents. Fortunately, there have been a few level-headed approaches such as **Applying Multiple Intelligences to Gifted Education** (1998, GEP) by Colleen Willard-Holt and Dan Holt. In this issue of GEPQ, we present a practical discussion of the MI topic by Lynn Fox (Dean, School of Education, American University) and two of her colleagues -- Sarah Belson and Deborah Thompson. This article presents a rational and well-planned approach to using the MI framework for training teachers to educate the gifted. The second article by Joseph Grispino is a discussion of his new book, **Chats with Gifted Students on Life Ahead** (2001). Interesting comments by Charlton Heston and Dr. Ben Carson provide insights into their giftedness, and Michael Walters writes about Eudora Welty and Larry McMurtry.

Maurice D. Fisher, Ph.D., Publisher

Teaching Gifted Children: Multiple Intelligences as a Framework in Pre-Service Teacher Preparation

By

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The current demand for new teachers in grades K to 12 has undergraduates and career switchers entering teacher preparation programs in record numbers. This presents an opportunity to educate a new generation of teachers about the special needs of gifted students. An opportunity that must, however, be carefully crafted since it is not inherent in most teacher preparation curricula. For example, most teacher education programs require a course in Special Education, but typically only one lecture and one chapter in a textbook is devoted to understanding the gifted child. Introductory courses such as Educational Psychology or Foundations of Education may not cover this topic at all or at best may contain two or three pages in a textbook.

This lack of attention to gifted education in the mainstream of teacher preparation is interesting given that many of the "new trends" in education have long been advocated by gifted education. For example, teachers now entering the profession are being asked to move away from traditional instructional strategies such as lectures and teacher-directed discussions to techniques that incorporate more opportunities for experiential learning such as project-based learning and cooperative learning. Such approaches are viewed as better able to encompass the wide range of individual differences found in today's classrooms including students with physical challenges, learning disabilities, and for whom English is a second language. These strategies have been at the heart of many program models for the gifted such as the Enrichment Triad (Renzuilli, 1999). Although efforts aimed at reform speak of the differences in learning preferences and cultural backgrounds of students as critical issues for teacher preparation (Burstein, Cabello; & Hamann, 1993; Obiakor & Ford, 1995), they often ignore the effects of mainstreaming and de-tracking on the opportunities for the gifted learner. Teachers need assistance in developing strategies to deal with the gifted learner in an inclusion model.

This paper presents a series of techniques designed for pre-service teachers using Howard Gardner's theory of Multiple Intelligences (MI) as a framework to think about learning and teaching for all children in ways that can address both the gifted learner and the student with learning-disabilities as well as the "regular" child in the classroom. The MI framework, which necessitates both creative and metaphorical thinking on the part of the educator, helps teachers think about diversity in terms of student ability, experience, and culture within a manageable matrix of approaches to instructional design.

Traditional teaching paradigms were based in traditional views of intelligence that focused on linguistic and logical reasoning abilities. These views conceptualized intelligence as mental energy (Spearman, 1904/1967) or as a more dichotomized set of verbal and non-verbal skills such as those presented in the Welcher Intelligence tests for Children-Revised (WISC-R). When children had difficulty learning a subject such as mathematics, but their tests of general intelligence were in the average or above average range, they were often called under-achievers. Howard Gardner's theory of multiple intelligences (1983, 1999) suggests the following two important changes to our view of intelligence and learning. First, the arenas in which one can be intelligent are expanded from the traditional view of linguistic and logical thinking to seven different areas: bodily-kinesthetic, interpersonal, intrapersonal, linguistic, logical, musical, and spatial. Although Gardner has added more areas of intelligence, the focus of this paper is on these seven. Second, the question of interest for educators becomes "how are you intelligent?" rather than "how intelligent are you?"

This paper describes how Multiple Intelligences (MI) theory has been incorporated into a program of teacher preparation. The theory meshes well with three other reform efforts emphasized in the program:

- Integrating curriculum, instruction, and assessment (Jacobs, 1998)
- Teaching standards in mathematics developed by the National Council of Teachers of Mathematics which emphasize communication and problem-solving (National Council for Teachers of Mathematics (NCTM), 1989), and
- Uses of computer-based technology for instruction (Kerr, 1996).

MI theory was integrated into courses in the teacher education program including educational psychology, mathematics, reading, and language arts instructional methods courses, and educational technology. Education undergraduate and graduate majors in this program are introduced to MI theory in a required introductory course in educational psychology. The introductory course is followed by courses that emphasize the application of

the theory to practice. In a methods course in reading, for example, elementary school majors are encouraged to see the relationships between MI theory and a whole language approach to language arts and reading. A methods course in elementary school mathematics helps students discover the link between MI theory and NCTM standards. An introductory course in educational technology allows students to apply the MI theory as they construct their own technology-based educational web pages and software applications.

Educational Psychology: Portal for Theory to Practice

In the Educational Psychology course, the discussion of individual differences and special education includes material on the history of assessment in education and compares early efforts to define and measure intelligence with more recent efforts by Gardner (1991, 1993), Sternberg (1981), and Guilford (1988). These modern views of intellect help connect patterns of cognitive abilities to implications for instructional practice. Students read about the theories before viewing a video about the Key School in Indianapolis, a school designed around the MI theory. Student teachers explore their own patterns of intelligence based on a checklist system developed by Armstrong (1994). Interestingly, each semester there are few pre-service teachers who score highest on logical or linguistic scales. Instead, the students' dominant areas are bodily-kinesthetic, musical, and interpersonal intelligences.

Grouped by their preferred "intelligence," students create an activity or presentation to teach a construct from their textbook about special education to the class as a whole as if the class was a PTA meeting or a similar gathering. Some examples are shown in Table 1. The activity is followed by reflections and discussion about the activity, the theory, and the practical concerns in developing activities around the theory. Thus, for example, the musical group must think of a way to teach about the concept of "inclusion" to teachers in a way that utilizes musical intelligences. The bodily-kinesthetic group may act out a skit they prepared to demonstrate the characteristics of a child with a learning disability. The intra-personal group may share their own reflections of being in a program for the gifted.

Table 1: Teaching Assignments for a Lesson on Multiple Intelligences

Intelligence	Target Audience	Topic
Musical	Elementary school teachers	Pros and cons of "inclusion"
Spatial	Parents	What is an IEP?
Interpersonal	Secondary teachers	Pros and cons of between class ability groupings
Intrapersonal	Undergraduate Education Majors	Recognizing emotional/behavioral disorders
Logical	Ninth graders	Accommodations for physical disabilities in schools
Linguistic	School Board	Acceleration vs enrichment for gifted children
Bodily-kinesthetic	Second graders	Characteristics of children with "learning disabilities"

According to Gardner, it is important to distinguish the construct of intelligence from domains within a culture that represent areas of content knowledge. Thus, logical intelligence may be involved in mathematical problem-solving, communication, and reasoning. Logical intelligence can be put to use in a large number of domains. Conversely, in mathematics one can use logical abilities to solve problems, but one can also use bodily-kinesthetic, spatial and linguistic abilities as well (Gardner 1991, 1993; Gardner & Hatch, 1989). Thus, it is important that the student teacher's first introduction to the concept allows for

reflection in terms of his/her personal experience. A reflective journal entry works well for this purpose. Class discussions explore the pre-service teachers' feelings about teaching the class using their dominant intelligences. Using a journal exercise, each student then has the opportunity to reflect on the relationship between the theory and their own personal experiences as a pre-service teacher. The student teachers are also asked to reflect on both formal and informal ways they can assess the areas of giftedness present among the students they will be teaching.

Different Ways of Knowing and Doing in Children's Literature: The Language Arts/Reading Methods Block

Nowhere is there a better niche for examining multiple intelligences than in children's literature and language arts/reading methods courses. It is in these courses that students should be pressed to show different ways of knowing. Eisner (1978) notes that knowing something means "knowing it in the variety of ways it can be known" (p. 15). Thus, if it is known that certain foods contain starch, this knowing can be shown in a variety of ways, e.g., traditional paper and pencil answers, common science experiments with iodine, mathematically with a formula, spatially with a model of a starch molecule or a three-dimensional computer model. A student may show she "knows" about the concepts of light and dark through the traditional written response or her "knowledge" can be manifested through several dimensions: photography, printing, painting, growing plants in different strengths of light or writing a musical composition using sharps and major keys to represent light and flats and minor keys to represent dark.

In children's literature and the language arts/reading methods courses, pre-service students are motivated to use language and their intelligences in a variety of ways. Pappas, Kiefer, and Levstik (1995) propose a variety of activities that tap students' different intelligences. There are several particularly effective activities that work well in children's literature and reading/language arts: book talks, jackdaws, discussion groups, and drama experiences. The jackdaw is impressive as a means of tapping a variety of intellectual capabilities. The jackdaw provides excellent motivation for students to learn about a historical period using a well-written piece of historical fiction as a point of departure (Lehr & Thompson, 1991). Named for an English blackbird that collects a myriad of objects, the jackdaw is a collection of anything real or imagined that relates to a book, time, or theme. The jackdaw can contain any or all of the following: maps of the time period, time lines, food from the period, music and games popular during the period, artifacts such as newspapers, clothes, menus, books, currency. The idea is for students to tap primary and secondary sources to extend the underlying themes of a book. Here student teachers begin to recognize ways they could individualize for children with different reading skills levels while still allowing for whole class instruction as needed.

Another mode of expression that works in children's literature is the book talk. Instead of giving a traditional book report, the student gives a different representation of the book. In some classes students have presented books in the following manner: *M.C. Higgins, the Great* (Hamilton, 1974) -- composed a song and created a sitting pole, *The Great Gilly Hopkins* (Paterson, 1979) -- created a local newscast about Gilly's antics complete with TV set, *Maniac Magee* (Spinelli, 1990) -- created a large string ball and unraveled it as the tale of Maniac's life is told, *Mrs. Frisby and the Rats of NIMH* (O'Brien, 1973) -- dressed up as Mrs. Frisby (a field mouse) and presented a case against animal testing used at the National Institutes of Mental Health (NIMH), *Frog and Toad Together* (Lobel, 1972) -- created and video-taped a puppet show. Group book talks have elicited such performances as The Mary Godly Show, a talk show on which the participants discussed the merits of *Memoirs of a Bookbat* (Lasky, 1994) and other controversial or censored titles.

Hot seating is another excellent way to tap the various intelligences. It is a drama technique in which a student volunteers to become one of the book's characters and is interviewed by the other students. The purpose of hot seating is to get students thinking about characters' decisions, problem solving strategies, and perspectives. No rules apply except that the student must stay in character and react as she or he thinks the character might. A student may take on a role in either gender, e.g., a female can be Mr. Tom Bee, a boy, Cassie). Before the book character takes the hot seat, the other students write down several interview questions. They may also ask spontaneous questions or a series of questions as the situation occurs. Hot seating can be used at any point in the book when the students know a character well enough to question her or his internal motivation. Interviewers must also ask fair and relevant questions, but can make inferences based on the book (Lehr & Thompson, 2000).

Students who participate in these activities can more than satisfy the questions as to whether they have understood the author's purpose, identified the main idea or detected theme, plot, character and setting. The ways of knowing a book are limitless. The student teachers begin to grasp the notion that when a teacher becomes open to the possibilities, their students may surprise them with their high levels of creativity and enthusiasm. By foregoing the more traditional methods of responding to books, students have opportunities to tap several different intelligences.

Table 2 shows how the intelligences can be used with *The Friendship* (Taylor, 1987) as a focus. In this exercise students reflect upon the different ways giftedness can be manifested through a creative approach to sharing a reading experience other than a "traditional book report."

Table 2: Reader Responses Using the MI Framework for *the Friendship*

Intelligence	Possible Reader Response
Logical-mathematical	Run the Wallace general store, complete with price listing for the 1930s.
Linguistic	Write an editorial for the local newspaper either condemning or supporting John Wallace's response to Mr. Tom Bee's calling him by his first name.
Musical	Compare the different styles of music popular during the 1930s.
Spatial	Create a collage of the book's events.
Interpersonal	Pretend to be a salesman who has to sell to both White and African American customers in the Wallace store. Consider how your services would differ.
Intrapersonal	Create diary entries for John Wallace and Mr. Tom Bee for the following dates: the day Mr. Tom Bee saved John Wallace, the time Mr. Tom Bee nursed John Wallace back to health, the day John Wallace shot Mr. Tom Bee for calling him by his first name in front of the Simms Brothers.
Naturalist	Recreate how young John Wallace could have survived the elements had Mr. Tom Bee not found him.

The NCTM Standards and MI Theory

The teaching of mathematics is another area in which there are many ways to help pre-service teachers experience the applications of MI theory. Students can use all the different areas of intelligence as they play games, create lessons and construct learning stations. In addition, these activities are linked to the general standards for the teaching of mathematics put forth by the National Council of Teachers of Mathematics (NCTM): reasoning, problem-solving, connectedness, and communication. Some activities used for in-class and outside assignments for pre-service teachers are shown in Table 3.

Table 3: A Variety of Activities for a Math Methods Course Using MI Theory

Multiple Intelligences	Pre-service class activity or assignment
Logical	Brainstorm ways to link MI theory to NCTM standards.
Linguistic	Select a children's story and build a math lesson based around the story.
Bodily-Kinesthetic	Create a dance or skit about fractions.
Spatial	Warm up activity at the start of a class. Estimate the number of jellybeans in a jar. Describe the ways you tried to visually estimate. Create some problems involving fractions and the colors of the jellybeans.
Interpersonal	Work in a group. Use jigsaw method and have students read articles about portfolios, diagnostic testing, and authentic assessment.
Intrapersonal	Write a mathematical autobiography.
Musical	Create a learning station for children (choose the age group you want) that involves musical instruments tied to a mathematical lesson. Example: Make drums out of containers such as oatmeal boxes, coffee cans, etc. Tie to problems of surface area or volume.

Connections between mathematics and the real world lead to ideas for an integrated curriculum. MI theory gives a framework for seeing the connections between mathematics and science, language arts, music, art, history, and geography. For example, MI theory can link mathematical patterns using spatial models of blocks to rhythmic or tonal patterns in music. Connecting

mathematics to other curricular domains can be done in ways that tap the different intelligences. The computer software program *Oregon Trail* by MECC makes a nice bridge between logical and linguistic intelligences by simulating life on the trail and by providing many reasoning and mathematical problems within an historical setting (Fox, Thompson & Chan, 1995; Fox, 1996).

Communication, in terms of the NCTM standards for mathematics, taps both inter and intra-personal intelligences, as well as linguistic intelligence, across a wide range of specific content and activities. For example, a cooperative learning activity could center on problem-solving using language, pictures, manipulatives, and body movements, all of which can be related to one or more specific mathematical concepts such as: sets, shapes, ratio, or fractions. Problem-solving and reasoning are tied closely to logical intelligence but may be more broadly conceived in ways to make problem-solving and reasoning draw on other types of intelligences. Concept maps, for example, use spatial ability, while creating story problems for others to solve taps both interpersonal and linguistic skills.

To help pre-service teachers learn how to incorporate the MI model into actual teaching activities, students in the mathematics methods course are assigned the task of creating learning stations. Using these activities, the class becomes a "Math Fair." In a recent semester, pre-service teachers conducted a "Math Fair" at a local elementary school. First and second graders were rotated through the activities in groups of four or five. These teachers in training were able to see the positive reactions the children had to mathematics when they could experience it in such an active and varied way.

Tapping MI Through Educational Technologies

The use of technology itself is changing the way we think about the teaching-learning process. Students in schools today are using the Internet to do research, learn about new communities, and have the opportunity to experience the unlimited resources that are available (Negroponte, 1995). Consensus is growing that an increase in educational technology is not only inevitable, but that it has the potential to serve as a powerful tool in the quest to improve the educational process for all learners (Edwards, 1997). For gifted and talented students, educational technology can allow opportunities to develop and use higher order thinking skills while engaging in real problems (Jones, 1990). New technologies of communication can provide an answer to issues of school isolation, individualized instructional needs, and authentic assessment. Advocates believe that technology can provide support for powerful new models of teaching and learning (Herman, 1994). In order for technology in education to be useful and effective, it must be grounded in current principles and paradigms of learning and intelligence. To integrate technology and reform classroom practice, one must focus on teachers' practices and beliefs about the teaching and learning processes (Carney, 1998). Technology can offer the user a personalized interface by incorporating principles of multiple intelligences. Animation, sound, graphics and hypertext can offer a multitude of instructional options within any computer-based application, and telecommunications, namely the Internet, can provide the medium by which these applications can be shared and utilized. However, the missing link in the successful use of technology is professional development that is matched to teachers' needs (Cognition and Technology Group of Vanderbilt, 1994).

In an introductory course on educational technology, pre-service teachers are able to tap their own intelligences and creativity, as well as create applications with many types of activities for an end-user by applying MI theory to the creation of an instructional web site. The purpose of the web site design project in this course is to develop a mechanism in which teacher-educators can be trained to use current and emerging technologies to model instructional strategies and to coordinate these activities with Gardner's Theory of Multiple Intelligences. The project provides pre-service teachers with the opportunity to develop interactive multimedia instructional modules with World Wide Web access, known as instructional web sites. The project objectives for the assignment include the following: creating multimedia web sites designed to strengthen particular intelligences; developing an interactive resource guide for web page development; finding Internet applications related to various intelligences; modeling the use of telecommunications as an instructional tool; and linking technology to principles of active learning and multiple learning styles.

Pre-service teachers explore the Internet and discuss the use of the Internet as a teaching tool. One key activity in which students engage is completing an "on-line" MI inventory to refresh their understanding of their own strengths and weaknesses, such as those listed in the references by Blackman (2000), McKenzie (2000) and Sauer (2001). After examining their own multiple intelligences, the teachers are trained in the development of instructional web sites, which includes HTML (Hypertext Mark-Up Language) editing and using current web design tools ranging from Netscape Composer to Macromedia Dreamweaver. Following a preliminary training session, the teachers develop a rubric for the evaluation of a web site. This includes identifying the objectives of the site, the population for which the site is designed, and the source of the site information. Evaluative criteria are developed to rate the site on the following: creativity of design and graphics, interactivity, instructional value, and completeness of coverage of the topic.

In the educational technology course, many students had not before had the opportunity to view technology through the lens of Multiple Intelligences. Because Internet resources tend to be textual in nature, classroom teachers often report that the presentation of material on the Internet does not allow for direct application to lessons, and may not be easy for students to use without assistance or reformatting. By allowing pre-service teachers to design webpages that meet the needs of diverse

learners, they not only contribute more useful material to the web, but they gain skills in adapting the plethora of material available to make the Internet more classroom accessible.

Table 4 shows examples of types of activities related to each of Gardner's intelligences used in the creation of instructional web sites, the content of each web site, and the end-users skills needed to complete the activities on each site. In addition to examining how MI can be used in web site design, students in the educational technology course also evaluate educational software with an eye toward what types of "intelligences" are tapped by the programs (Veenema & Gardner, 1996).

Technology can be viewed as a tool that when used in combination with MI theory can generate highly sophisticated interactive learning environments that are appropriate for gifted students. As we prepare teachers to use technology-based tools it is important to ground the practices in sound pedagogical theory. MI theory is a meaningful way to help students begin to make the connections between theory and practice.

Table 4: Multiple Intelligences Utilized in Web Site Creation, Content, and End-User Activities

Intelligence	Development of Web site	Content/Topics on Web sites	End-user intelligences needed to complete Web site activities.
Linguistic	Writing content, background information on content area.	How to be a journalist	Reading, e-mail comments in response to a web site
Logical-Mathematical	HTML Coding	Using a Calculator	Complete math problems on the Calculator site How to Mortgage your Home
Spatial	Page Layout, Graphics	Tourism sites, digitizing video Scavenger hunt	Follow the hypertext and maps on each site. Complete a jigsaw puzzle
Bodily-Kinesthetic	Use of a mouse, scanner, digital camera	Swimming site Math through Movement site	Practice a swimming stroke, play hopscotch
Musical	Creation of MIDI files, other audio files on web sites	How to play a guitar site Travel and tourism sites	Learn the chords on a Guitar. Listen to music
Interpersonal	Working with others for assistance with technical, content areas of sites	The Best Washington, DC date restaurants site Dormitory Site	Collaborate with other interested in travel, selecting a university, completing a dissertation
Intrapersonal	Selecting the content of each site, providing personal history on each site	So you want to be a Ph.D.? site Alcohol Fun & Safety site	Selecting instructional path

Impact

The impact of the efforts to systematically incorporate MI theory and practice in undergraduate teacher-training courses was assessed in several ways, with particular focus on how this approach would allow future teachers to incorporate students with gifts and talents into the classroom. Each instructor analyzed student projects and products during the courses in terms of evidence of knowledge and understanding of MI theory; awareness of the range of individual differences among the children they would teach including gifted students; and how to individualize instruction using the MI framework. The instructors also looked for evidence of students' understanding of the MI framework in terms of:

- Appreciation of integrated curriculum,
- Application of technology for instruction,
- Awareness of emerging standards in the disciplines.

In the Educational Psychology course, most of the evidence of impact came in the weekly reflective journal writing where students responded to assigned readings and to case studies. In the technology course, the interactive webpage project required students to attend to multiple intelligences directly in the design and explanation of their interactive teaching tool. The language arts course instructor looked for evidence of understanding of the range of individual differences in students' approaches to creating jackdaw kits that focused historical fiction for children and multiple ways for children to respond to the book.

In the educational technology course, 90% of the students were able to develop instructional websites that directly tapped each of the Multiple Intelligences. Through activities that required the user to print out an activity and to try out steps and procedures, some materials allowed the use of kinesthetic and spatial intelligence. Through incorporating rhythm and patterns, other materials enabled the use of musical intelligence. Through activities that required the user to talk about the content and to organize ideas, the materials tapped interpersonal and intrapersonal intelligences. Students who were unable to develop materials that directly tapped the seven intelligences found they were able and willing to adapt and embellish later course projects to accommodate different styles of learning. Students also reported confidence in adapting other technology-based materials to meet the needs of diverse learners. By examining educational software through the lens of MI, students were able to make better decisions about what types of computer experiences were appropriate for different students.

The instructors felt that they too had been transformed by this experience. All three reported trying new approaches in their own teaching as they sought to model the practices they were advocating. In educational psychology, for example, the instructor created more options for projects that included ways to respond using a variety of intelligences in ways she had not before this effort. For example, bodily-kinesthetic projects, web page projects, and visual products were incorporated into options for group projects. One final project allowed students to create a mural for a hallway in a building on campus that incorporated art and writing developed by students in response to the theme "teaching for diversity."

Conclusions

Educators have a unique opportunity to educate a large number of teachers entering the field about individual differences, especially giftedness, through the use of the MI framework. It is easy to conceptualize and to remember. The use of this framework for developing learning activities helps students incorporate many ideas relevant to a cognitive constructivist classroom, which can allow for enriching and accelerated instruction for all students, including the gifted. It encourages teachers to develop ways for students to respond to curricular material depending on their prior knowledge, learning preferences, and interests. It lends itself to introducing students to planning lessons that are built around thematic teaching and active learning. The emphasis on responding to different intelligences helps student teachers create lessons that incorporate technology while focusing on the adaptation of technology to individual differences in interests and experience, including the too-often forgotten "bright" child.

The instructors of all four courses felt their own understanding of the problems, the pitfalls, and the benefits of this conceptual approach to teaching was greatly enhanced by their own struggles to develop applications of MI theory and cognitive constructivist teaching in their own classroom. Incorporating the MI framework into planning and activities for the college classroom forces the teacher educator to model what they teach. For the future teachers in inclusion classrooms, the need for pre-service experiences that address diverse learning needs has never been more significant. ✦ ✦ ✦

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Let early education be a sort of amusement; you will then be better able to find out the natural bent. Plato, c. 428-348 B.C.

You can't wait for inspiration. You have to go after it with a club. Jack London, 1896-1916

The investigation of the meaning of words is the beginning of education. Antisthenes, c.445-c. 365 B.C.

If a little knowledge is dangerous, where is the man who has so much as to be out of danger? Thomas Henry Huxley, 1825-1895

CHATS WITH GIFTED STUDENTS ON LIFE AHEAD: Philosophy for Non-Philosophers at the Middle and High School Levels*

By Joseph A. Grispino Tucson, Arizona

Why is this book, CHATS, important? First, because it's *sui generis*, the only one of its kind, at least as far as I'm aware. It fills a gap in the scholastic literature written for middle and high school children gifted. To tout CHATS as filling a gap means that although philosophy is taught in some middle and high schools, philosophy is not taught as it is in CHATS. As far as I can determine, when philosophy is taught on these levels, the textbooks chosen are either those commonly used for **first** year college courses or they are selected readings from traditional philosophers. Both types of textbooks may be too difficult and impractical for pre-college students. The teachers, through no fault of their own, lack the necessary degrees, philosophical background, education and training.

CHATS is *sui generis* not only because it fills a gap but because it's a philosophy book in English, for gifted youngsters, written in non-technical language, covering a wide range of practical issues which traditional philosophers love to discuss.

I specify "in English" because there is de facto a comparable book in French. France is the only country in the world that requires philosophy to be taught at what roughly corresponds to our high school level. Are not American students equally gifted in intelligence and worthy of philosophy?

"In English" also implies that there is no such book published in any English speaking country -- Canada, England, Scotland, Wales, Ireland, Australia, and New Zealand.

CHATS IS A BOOK ON "PRACTICAL ISSUES," NOT ON THE HISTORY OF PHILOSOPHY. These are the two major ways that college courses teach philosophy. In courses on the history of philosophy, each philosopher's specific answers are presented for each problem he chooses to investigate. By contrast, in a philosophy course as problems, like CHATS the problems themselves are selected and the best answers are proposed regardless which philosopher gave them.

Second, CHATS is important because it will defend gifted children from the sharks of deception lurking in the alleyways of life. I mean sharks like advertisers (when they create desires for things we don't need), business men (when they hope that we don't read their fine print), lawyers (when they suggest suing), politicians (when they represent lobbyists instead of their constituents), and reporters on TV, radio, newspapers, and magazines (when they slant the news).

Third, CHATS is important because it will prepare youngsters for life ahead by alerting them to issues that will deeply influence their lives: the issue of religion (God) and problem of evil (Ch.10), nature of human happiness (Ch. 11), elements of democracy (Ch. 7), death penalty (Ch. 8), civil disobedience (Ch. 9), abortion (Ch. 16), euthanasia (Ch. 17), pornography, gays/ lesbians (Ch. 18).

Fourth, perhaps CHATS's most important contribution in assisting youngsters to meet life's problems is an adoption of a logical method and an ethical style.

The logical method (Ch. 3) instructs how to recognize arguments (different from explanations) with their assumptions, premises, conclusion and how to detect fallacies camouflaged in clever wordings. Man may be born free but everywhere he is in the chains of fallacies. It's amazing how many educated people get strangled in a web of fallacies spun by corporations and the spin doctors of the media.

Besides the logical method, there is the equally if not more important ethical method (Ch. 13). This chapter is a compressed course on practical ethics with succinct guidelines on living a life of integrity. Within this chapter lies a cameo presentation of a practical ethical style of living. It consists of three ethical yardsticks (the greatest good for the greatest number, rights, burdens vs. benefits) to solve problems, be they personal or societal. This homespun ethical yardstick style may serve as a supplement to any religious ethical style or in place of it if one does not espouse any religion.

The fifth reason why CHATS is important lies in its emphasis on objectivity in the quest for truth and in tolerance for the views of others.

Objectivity in discussions and conversations forms the heart of philosophy. Irrespective of all the wranglings about the correct theoretical definition of philosophy, there looms one constant from the hoary days of classical antiquity to the present, namely -- the mind ought to admit evidence even to the point of excruciating pains of abandoning cherished prejudices or unexamined traditions.

Of eminently urgent importance in present-day America is the virtue of tolerance. In the discussions of abortion and euthanasia, for example, tolerance for the views of others is stressed. The tolerance theme beckons youths to make the American

experiment succeed -- that the only nation in the history of the world with so many cohabiting different religions may live in peace. We are reminded of the importance for this experiment to succeed as we watch daily on TV the self-destruction of nations with only two religions.

The sixth reason why CHATS is an important book is because of its Epilogue: What's the biggest headache of the human race? I submit that the answer is: how to control its feelings how to get along in peace with one another as individuals and as nations. I have never seen nor heard the question and the answer anywhere. In this sense I consider the epilogue an original essay.

Some years ago I presented this question and answer in the Proceedings of The American Philosophical Association. The response was anemic.

In conclusion, the gifted child must not only be thought of as endowed with exceptional intelligence but also with exceptional virtue. **CHATS** is most important if it adds luster to these two jewels, intelligence and virtue, which balance the coronet of the genuine gifted child. ✲ ✲ ✲

*Book published by Gifted Education Press, Summer 2001.

What factors in your background have contributed to your giftedness? How?

In the Summer 2001 issue we asked these questions of the acclaimed historian, Jacques Barzun. Now, here are the responses of two other highly accomplished individuals:

Charlton Heston is best known for his staring roles in such movies as "The Ten Commandments" (1956), "Ben-Hur" (1959, Academy Award) and "The Agony and the Ecstacy" (1965).

Dr. Ben Carson is Director of Pediatric Neurosurgery at Johns Hopkins Medical Center. We highly recommend his autobiography, **Gifted Hands** (1990, Zondervan Publishing House), and his latest book mentioned below. In addition, please see Time Magazine's tribute to him (***Super Pediatrics Surgeon***) in the August 20, 2001 issue, pp. 34-35.

Charlton Heston –

Thanks for your letter. I applaud your efforts on behalf of the teaching profession, one I respect a great deal.

I grew up being read to and then reading on my own. I've never stopped. I read everything including cereal boxes if there isn't anything else available. I never leave my home without at least one book. I think it's the single most important skill any of us can master.

Aside from reading and basic life experience, I've always adhered to Spencer Tracy's immortal advice to actors: "Show up on time, know your words and don't bump into anything."

My best wishes to you and your readers.

Dr. Ben Carson –

One of the key factors to success is accepting personal responsibility and never giving room to the victims' mentality. When a person can find circumstances or people to blame for their lack of achievement, they have no reason to strive for excellence. My philosophy can be summed up with my frequent advice to people which is, "Do your best and let God do the rest."

You can find significant expansion of these ideas in my latest book entitled **The Big Picture** by Zondervan publishing which came out in 1999. Good luck with your project.

The Lives of Two Great American Authors: Larry McMurtry and Eudora Welty

by Michael E. Walters Center for the Study of the Humanities in the Schools

". . .First I try to herd a few desirable words into a sentence, and then I corral them into small pastures called paragraphs, before spreading them across the spacious ranges of a novel." From **Walter Benjamin at the Dairy Queen: Reflections at Sixty and Beyond** (1999, Simon & Schuster) by Larry McMurtry. p. 54.

"As you have seen, I am a writer who came of a sheltered life. A sheltered life can be a daring life as well. For all serious daring starts from within." From **One Writer's Beginnings** (1984, Harvard University Press paperback edition) by Eudora Welty. p. 104.

These quotations are from two classic American memoirs that provide insights into some of the factors related to giftedness.. Larry McMurtry (1936-) has written numerous works of fiction (e.g., **Lonesome Dove**, 1985, Pulitzer Prize) and screenplays (**The Last Picture Show**, 1971). Eudora Welty (1909-2001) also won a Pulitzer Prize for her novel, **Optimist's Daughter** (1972), and is considered to be one of the masters of American short stories. After her recent death in July 2001, she received appreciative obituaries in the New York Times, Time Magazine and U.S. News and World Report.

McMurtry grew up in a small town, Archer City, located in the Texas plains that was previously an area of small ranches, farms and oil wells. Welty spent most of her life in Jackson, Mississippi, the state capital. However, they demonstrated similar characteristics during their development as gifted individuals. The first characteristic both of these writers possessed was a type of sensibility that enabled them to take rich memories, folklore and personal interactions they encountered, and to use this information to create outstanding literature. Whatever they saw, heard or felt became transformed into themes and imagery containing universal meanings for all readers. Welty describes this sensibility in the following terms: "The events in our lives happened in a sequence in time, but in their significance to ourselves they find their own order, a timetable not necessarily – perhaps not possibly – chronological. The time as we know it subjectively is often the chronology that stories and novels follow: it is the continuous thread of revelation." (Eudora Welty, **One Writer's Beginnings**, 1984, pp. 68-69). McMurtry used the metaphor of the cowboy as a meditation upon the interpretation of myth and reality. The myth of the cowboy is an American icon which has assumed a reality for both the American and universal imagination. His books would create many sagas about this icon.

The second characteristic shared by both of these writers is the role of mentors in their lives. The mentors in Welty's life were mainly various family members who encouraged her to perceive herself as a writer -- their lives became her themes and plots. In a similar manner as Emily Dickinson's poetry and Jane Austin's novels, Welty found the history of the human race in her family's world. McMurtry's mentors were professors he encountered at both Rice and Stanford universities. For example, he participated in the writing seminar at Stanford conducted by the outstanding writer of the American West, Wallace Stegner (1909-93). This Stegner class of 1960-61 has produced between 70 and 80 books. Another one of his mentor's was the American literary critic and "great reader," Edmund Wilson, who taught McMurtry how to use what one reads as a basis for literary productivity.

The third characteristic shown by both of these writers is their love of and devotion to books. Both had seminal encounters with books as children. Welty was constantly read to as a child. Her house contained many novels and resource books such as Charles Dickens' and Mark Twain's novels and the Book of Knowledge. When McMurtry was six years old, his cousin dropped off a box of nineteen boys' books on his way to army boot camp during World War II. These nineteen books led to his interest in writing and collecting books. After his heart quadruple-bypass surgery in 1991, he eventually returned to his work as a "book scout" in the rare book trade and opened book stores in his home town of Archer City, Texas. The title of McMurtry's memoir is related to the impact that Walter Benjamin had on his psyche after reading Benjamin's famous essay on story-telling (in **Illuminations**, 1961). Welty's memoir was the result of a series of lectures she delivered at Harvard University in April 1983 to inaugurate the William E. Massey lecture series. She was invited to speak by the History of American Civilization program at this university.

The two memoirs should be used in creative writing courses for gifted students. By studying these writings by McMurtry and Welty, they will learn something about the dynamics of sensibility, mentoring and the significance of reading in the development of giftedness. ". . .I still believe that books are the fuel of genius. Leaving a million or so in Archer City is as good a legacy as I can think of for that region and indeed for the West." (Larry McMurtry, **Walter Benjamin at the Dairy Queen: Reflections at Sixty and Beyond**, 1999, p. 179).